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ABSTRACT

The following articles on syntax and semantics were researched at the Harvard Syntax Workshop: (1) "Clause Reduction in Spanish," by Judith Aissen and David Perlmutter; (2) "Reduced WH-Questions," by Robin Bechhofer; (3) "Reduction in Conjoined WH-Questions," by Robin Bechhofer; (4) "On Subject-to-Object Raising in Arabic," by Joel Clinkenbeard; (5) "On the Ordering of Some Inversion Rules with Contraction," by Ava-Robin Cohen; (6) "Don't You Dare," by Ava-Robin Cohen; (7) "The Role of the Subject/Nonsubject Distinction in Determining the Choice of Relative Clause Participle in Turkish," by Jorge Hankamer and Laura Knecht; (8) "Prepositional Phrase Extraposition," by Bruce Hayes; (9) "Raising in Modern Greek: A Copying Process?" by Brian Joseph; (10) "Turkish Comparatives," by Laura Knecht; (11) "The Cycle Against Free Rule Application," by Jaklin Kornfilt; (12) "Verb Agreement in Fox," by Philip LeSourd; (13) "Avoiding Ambiguity in German Double Accusatives," by Eve Sweetser; (14) "Some Arguments Against the Interpretive Theory of Pronouns and Reflexives," by Hoskuldur Thrainsson; and (15) "The Discovery of Another Island," by Annie Zaenen and Jessie Pinkham. (NCR)

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These papers represent the research of the participants in the Harvard Syntax Workshop, fall and winter 1975.

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Clause Reduction in Spanish*

Judith Aissen and David M. Perlmutter
Harvard M.I.T.

0. *Introduction*

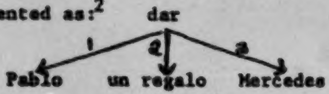
This paper is a report of work in progress on a number of syntactic phenomena in Spanish and Italian that we seek to explain by positing a rule of Clause Reduction that makes dependents of a complement verb dependents of the matrix verb. Here we confine ourselves to data from Spanish, though analogous arguments can generally be made for Italian.[1]

Most of the discussion in this paper is couched in terms of the theoretical framework of relational grammar proposed by Perlmutter and Postal (in preparation). In this framework, the structure of a sentence is regarded as a network of grammatical relations or, more simply, as a *relational network*. For the purposes of this paper, we need only be concerned about a proper subset of the grammatical relations posited in that theory: the relations *subject of*, *direct object of*, and *indirect object of*. Following Perlmutter and Postal (in preparation), we will refer to these grammatical relations as *1*, *2*, and *3*, respectively, and represent sentence structures as relational networks. For example, the structure underlying the sentence

(1) Pablo le dio un regalo a Mercedes.
'Pablo gave a gift to Mercedes.'

is represented as:[2]

(2)



This structure consists of a governor (the verb *dar*) and three *nominal dependents* - *Pablo*, *un regalo*, and *Mercedes*. The *arc* between each nominal dependent and *dar* indicates that the nominal in question bears a grammatical relation to *dar*, and the numeral on each arc indicates *which* grammatical relation the nominal in question bears to the governor verb. The relative order of the 1, the 2, and the 3 in (2) is arbitrary, since the relational network represents grammatical relations and not the linear order of elements in surface structure.

In certain cases, it is necessary to make further distinctions. For example, consider the sentences

(3) a. Los ministros fueron criticados por la prensa.
'The ministers were criticized by the press.'

b. Los ministros parecen haber sido criticados por la prensa.

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'The ministers seem to have been criticized by the press.'

Traditional grammarians would have said that in (3a), *la prensa* is the *logical subject* of *criticar* and *los ministros* is the *grammatical subject*. Transformational grammarians would say that in (3a), *la prensa* is the *deep (structure) subject* and *los ministros* is the *derived subject*. In Perlmutter and Postal's theory of relational grammar, in (3a) *la prensa* is the *initial 1* of *criticar*[3] and *los ministros* is the *classic 1*.

While Perlmutter and Postal's notion of *initial 1* is close to the traditional notion of *logical subject* and the transformational notion of *deep subject*, their notion of *classic 1* cannot be identified with the transformational notion of *derived subject*. To see this, consider (3b). In this sentence, *la prensa* is again the initial 1 of *criticar*, but *los ministros* is the classic 1 of *parecer*, not of *criticar*. Just as a given nominal can be the initial 1 of only one verb, it can be the classic 1 of only one verb. However, there is another notion of 'subject' that an adequate theory of grammar must capture - one in which *los ministros* is the 1 of both *parecer* and *criticar* in (3b); for example, *los ministros* triggers plural agreement on both *parecen* and *criticados*. Perlmutter and Postal refer to this notion as that of *canonical 1*, saying that *los ministros* is the canonical 1 of both of these verbs in (3b). The relational grammar notion of *canonical 1* corresponds roughly to the notion of *cycle-final subject* in a cyclical theory of grammar.

A crucial difference between the notion of *classic 1* and that of *canonical 1* is that a given nominal can be the canonical 1 of more than one verb in a given sentence, but it can be the classic 1 of only one verb. If a given nominal is the classic 1 of a given verb it is also the canonical 1 of that verb, but the converse of this statement is not necessarily true. A given verb, however, has only one canonical 1. In a sentence in which no rule has created a 1, the same nominal will be the initial 1, the canonical 1, and the classic 1 of the verb. In (1), therefore, *Pablo* is the initial, canonical, and classic 1 of *dar*.

1. Two Rules of Spanish

1.1 Clitic placement

A non-pronominal classic 2 or 3 of a verb generally follows its verb in surface structure, as does *el edificio nuevo* in:

(4) Eduardo vio el edificio nuevo.
'Eduardo saw the new building.'

A *pronominal* object is in the *strong form* when it occurs under emphasis and in positions of contrast. In such cases, it is subject to the same word order rules as non-pronominal objects. Therefore it generally follows the verb, as in:

(5) Eduardo no la vio a *ella* sino a *él*.
'Eduardo didn't see *her* but *him*.'

Otherwise, the clitic form of the pronoun is used.

Spanish has a rule of Clitic Placement that attaches a clitic to the verb of which it is a classic dependent. When a clitic is attached to a finite verb, it precedes the verb:

(6) Eduardo la vio.
'Eduardo saw her.'

When a clitic is attached to a non-finite verb form (either an infinitive or a gerund), it follows the verb:

(7) a. Quiere verla.
'He wants to see her.'

b. Sigue viéndola.
'He continues seeing her.'

Since this contrast in clitic position is predictable from the finiteness (or non-finiteness) of the verb, we will not be concerned with it further here. When clitics are attached to verbs, the combination of clitic plus verb forms a single phonological word. This is reflected in Spanish orthography when the clitic follows the verb, but not when it precedes it.

1.2 Subject Pronoun Drop

In general, non-emphatic and non-contrastive subject pronouns do not occur in surface structure in Spanish. They are deleted by a rule we call Subject Pronoun Drop. In the sentences in (7), the third person singular subject pronoun has been deleted by Subject Pronoun Drop.

2. Two Classes of Verbs in Spanish

(8) a. Luis quiere comer las manzanas amarillas.
'Luis wants to eat the yellow apples.'

b. Luis trató de comer las manzanas amarillas.
'Luis tried to eat the yellow apples.'

c. Luis suele comer las manzanas amarillas.
'Luis tends to eat (the) yellow apples.'

(9) a. Luis insistió en comer las manzanas amarillas.
'Luis insisted on eating the yellow apples.'

b. Luis soñó con comer las manzanas amarillas.
'Luis dreamed of eating the yellow apples.'

c. Luis parece haber comido las manzanas amarillas.
'Luis seems to have eaten the yellow apples.'

Without attempting to justify this here, we assume that the (a) and (b) sentences in (8-9) involve Equi controlled by the matrix subject, while the (c) sentences involve Subject-to-Subject Raising. A pronominal object of the infinitive cliticizes to the verb, forming a single phonological word with it:

(10) a. Luis quiere comer*las*.
'Luis wants to eat them.'

b. Luis trató de comer*las*.
'Luis tried to eat them.'

c. Luis suele comer*las*.
'Luis tends to eat them.'

(11) a. Luis insistió en comer*las*.
'Luis insisted on eating them.'

b. Luis soñó con comer*las*.
'Luis dreamed of eating them.'

c. Luis parece haber*las* comido.
'Luis seems to have eaten them.'

The point of prime importance for us here is that alongside (10), the following sentences are also grammatical:

(12) a. Luis *las* quiere comer.
'Luis wants to eat them.'

b. Luis *las* trató de comer.
'Luis tried to eat them.'

c. Luis *las* suele comer.
'Luis tends to eat them.'

In (12), the pronominal clitic that is the initial 2 of the complement verb appears on the finite matrix verb. If the matrix verb is one of the matrix verbs in (9), however, this is not possible. Thus, alongside (11), the following examples are ungrammatical:

(13) a. *Luis *las* insistió en comer.

b. *Luis *las* soñó con comer.

c. *Luis *las* parece haber comido.

In brief, two classes of verbs must be distinguished in Spanish according to whether or not they can support a clitic pronoun that originated as a dependent of a complement verb (henceforth *complement clitics*). We will refer to verbs that can support complement clitics as *trigger verbs* and to those that cannot as *non-trigger verbs*. Thus, the matrix verbs of (8) are trigger verbs while those of (9) are non-trigger verbs.

For any given speaker, most verbs that govern infinitival or gerund complements fall clearly into one class or the other. However, the membership of each class varies somewhat from speaker to speaker. In this paper we present a hypothesis to account for the difference in syntactic behavior between trigger verbs and non-trigger verbs. This hypothesis does not predict the class any particular verb will belong to for any individual speaker. However, it does offer a means of testing the class membership of a particular verb for any speaker and makes certain predictions about the syntactic behavior of the verb once its class membership is known.[4]

Below is an illustrative list of trigger and non-trigger verbs.

Trigger Verbs

solar 'tend'
acabar (de) 'have just'
querer 'want'
tratar (de) 'try'
poder 'can, be able'
deber 'ought, should'
empezar (a) 'begin'
terminar (de) 'finish'
continuar 'continue'
seguir 'keep on'
dejar (de) 'stop'
volver (a) 're-,again'
ordenar 'order'
permitir 'permit'

Non-trigger Verbs

parecer 'seem'
deber (de) 'must(epistemic)'
insistir (en) 'insist'
soñar (con) 'dream (of)'
decidirse (a) 'decide (to)'
evitar 'avoid'
sugerir 'suggest'
pedir 'ask'
decir 'say'
afirmar 'affirm'

3. Three Hypotheses Concerning the Difference between Trigger Verbs and Non-Trigger Verbs

3.1 The Clitic Climbing Hypothesis

Under the Clitic Climbing hypothesis, the grammar of Spanish contains a rule of Clitic Climbing that optionally moves clitics from a subordinate clause into a higher clause under certain conditions that need not concern us here. This rule accounts for the position of the clitic pronouns in (12). Under this hypothesis, trigger verbs are characterized as triggering Clitic Climbing, while non-trigger verbs do not trigger this rule.

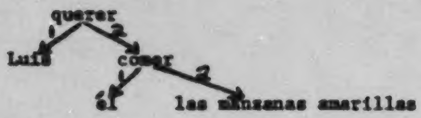
3.2 The Verb Adjunction Hypothesis

The Verb Adjunction hypothesis has been proposed by Rivas (1974) within the framework of transformational grammar. Under this hypothesis, trigger verbs trigger a rule of Verb Adjunction that adjoins the complement verb to the matrix verb. The rule of Clitic Placement is then formulated in such a way that its application to structures in which Verb Adjunction has applied results in complement clitics being moved to the matrix verb. Under this hypothesis, non-trigger verbs do not trigger Verb Adjunction; as a result, complement clitics never appear on a non-trigger matrix verb.

3.3 The Clause Reduction Hypothesis

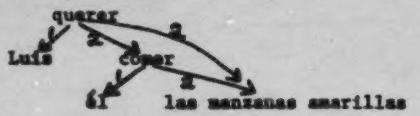
In this paper, we present the Clause Reduction hypothesis within the general framework of relational grammar proposed by Perlmutter and Postal (in preparation). Under this hypothesis, trigger verbs differ from non-trigger verbs in that they trigger a rule of Clause Reduction that makes dependents of the complement verb dependents of the matrix verb. Consider (8a). Without Clause Reduction, the structure of this sentence is:

(14)



If Clause Reduction is triggered, the structure of (8a) is:

(15)



In (15), the fact that *las manzanas amarillas* bears the 2-relation to *querer* is indicated by the arc between it and *querer*.

Under the Clause Reduction hypothesis, there is no need for a rule of Clitic Climbing. The rule of Clitic Placement attaches each clitic to the verb of which it is a classic dependent. Thus, if instead of *las manzanas amarillas* the initial 2 of *comer* is pronominal, and if Clause Reduction is not triggered, as in (14), the pronoun is a classic dependent only of *comer* and therefore is attached to *comer*; the resulting sentence is (10a). If, on the other hand, Clause Reduction makes it a dependent of *querer*, as in (15), Clitic Placement attaches it to *querer*, and (12a) results. Under the Clause Reduction hypothesis, a clitic ends up attached to the verb of which it is a *classic dependent*.

Under the Clause Reduction hypothesis, trigger verbs are characterized as permitting Clause Reduction, while non-trigger verbs do not allow this rule. Since both the sentences in (10) and those in (12) are grammatical, Clause Reduction is an optional rule.

3.4 Brief Comparison of the Three Hypotheses

The three hypotheses account for the data concerning the distribution of clitics in surface structure in different ways. The Clitic Climbing hypothesis postulates an optional rule of Clitic Climbing, saying that a clitic from a complement can optionally move up to the matrix verb. The Verb Adjunction and Clause Reduction hypotheses, on the other hand, eliminate the rule of Clitic Climbing by saying that trigger verbs trigger another rule as a result of which the independently needed rule of Clitic Placement will be able to account for the surface distribution of clitics. The difference between these two hypotheses lies in the different rules they postulate to achieve this result as well as in the different theoretical frameworks in which they are embedded. The Verb Adjunction hypothesis could probably be formulated in such a way as to account for the facts presented in this paper, but we will not attempt to do that here. In this paper we will simply argue against the Clitic Climbing hypothesis and for the Clause Reduction hypothesis.

4. Evidence for Clause Reduction: Constraints on Clitic Climbing

In §4 we show that the Clause Reduction hypothesis immediately makes two predictions that the Clitic Climbing hypothesis does not make. In each case, a grammar that incorporates a rule of Clitic Climbing will be forced to postulate an additional constraint that is unnecessary in a grammar with Clause Reduction. We conclude that the data in §4 constitutes evidence for rejecting the Clitic Climbing hypothesis in favor of the Clause Reduction hypothesis.

4.1 Multiple Clitic Dependents of a Single Embedded Verb

Consider first the case of a complement verb that has more than one clitic dependent, as in

(16) Quiero mostrártelos.
I+want show+you+them
'I want to show them to you.'

In (16), both te and los are clitic dependents of the complement verb mostrar. Under the Clause Reduction hypothesis, (16) results from a structure that has not undergone Clause Reduction. If the underlying structure undergoes Clause Reduction, te and los will become dependents of querer and Clitic Placement will consequently attach them to that verb, producing the sentence

(17) Te los quiero mostrar.
'I want to show them to you.'

Under the Clause Reduction hypothesis, there are only two possibilities: either the structure undergoes Clause Reduction or it does not. The former produces (16), while the latter produces (17); no other sentences can arise from the structure in question.

Under the Clitic Climbing hypothesis, on the other hand, things are different. Since Clitic Climbing is an optional rule, there is nothing to prevent one complement clitic from moving to the matrix verb while the other stays behind. This would produce the following ungrammatical sentences:

(18) *Te quiero mostrarlos.

(19) *Los quiero mostrarte.

A grammar that incorporates a rule of Clitic Climbing therefore needs an additional constraint:[6]

(20) The Multiple Clitic Constraint

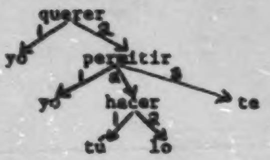
If a verb has more than one clitic dependent, then either all clitic dependents of that verb undergo Clitic Climbing or none do.

A grammar that accounts for the phenomenon by means of a rule of Clause Reduction, on the other hand, cannot generate *(18-19) and thereby automatically predicts that these sentences will be ungrammatical. In other words, the Clause Reduction hypothesis explains why these sentences are ungrammatical. The ungrammaticality of sentences like *(18-19) constitutes evidence for rejecting the Clitic Climbing hypothesis, which needs an additional device to account for them, in favor of the Clause Reduction hypothesis, which explains them.

4.2 Intersecting Clitic Climbing

Now consider a three-storey structure such as[7]

(21)



in which (i) the second and third verbs each have a pronominal dependent, and (ii) the two higher verbs both optionally trigger Clause Reduction.[8]

The sentence that results from (21) is:

(22) Quiero permitirte hacerlo.
'I want to allow you to do it.'

In (22), te is the classic 3 of permitir and lo is the classic 2 of hacer; as a result, te is attached to permitir and lo is attached to hacer in the surface structure of (22).

Consider what can happen to (21) under the Clause Reduction hypothesis.

In a structure in which only permitir triggers Clause Reduction, lo will become a dependent of permitir, producing the sentence

(23) Quiero permitírtelo hacer.
'I want to allow you to do it.'

In a structure in which both querer and permitir trigger Clause Reduction, both te and lo will become dependents of querer, producing the sentence

(24) Te lo quiero permitir hacer.
'I want to allow you to do it.'

In a structure in which querer triggers Clause Reduction but permitir does not, te will become a dependent of querer but lo will remain a dependent of hacer. The result will be the sentence

(25) Te quiero permitir hacerlo.
'I want to allow you to do it.'

Finally, if neither querer nor permitir triggers Clause Reduction, te will remain a dependent of permitir and lo will remain a dependent of hacer, resulting in (22). Under the Clause Reduction hypothesis, this exhausts the possibilities.

Under the Clitic Climbing hypothesis, however, there is still another possibility. Since Clitic Climbing is optional, there is nothing to prevent _te_ from moving to _querer_ and _lo_ from moving to _permitir_ in the same structure. The result, however, is ungrammatical:

(26) *_Te_ quiero permitir_lo_ hacer.

A grammar that incorporates an optional rule of Clitic Climbing thus needs some device to prevent sentences like *(26) from being generated. Under the Clause Reduction hypothesis, on the other hand, the ungrammaticality of sentences like *(26) follows automatically, without any additional devices. Thus, unless it can be shown that the additional device or devices needed by the Clitic Climbing hypothesis to prevent sentences like *(26) are motivated independently,[9] the ungrammaticality of such sentences constitutes grounds for rejecting the Clitic Climbing hypothesis in favor of the Clause Reduction hypothesis.[10]

5. Second Type of Evidence for Clause Reduction: Reflexive Passive

5.1 Reflexive Passive

Sentences (27-29) are produced by the rule we call _Reflexive Passive_, which advances a 2 to 1. This advancement produces sentences in which the clitic _se_ (the third person reflexive pronoun) accompanies the verb. We therefore call this construction by the traditional name of _reflexive passive_.

(27) Las propiedades se vendieron ayer.
'The pieces of property were sold yesterday.'

(28) Estas canciones se cantan siempre primero.
'These songs are always sung first.'

(29) Esta construcción se emplea con toda clase de sujetos.
'This construction is used with all kinds of subjects.'

In each case, the initial 2 of the verb has advanced to 1. In these examples, _las propiedades_, _estas canciones_, and _esta construcción_ are the canonical and classic 1s of their respective verbs.

Spanish thus has two distinct rules that advance a 2 to 1. (27), produced by Reflexive Passive, contrasts with the sentence

(30) Las propiedades fueron vendidas ayer.
'The pieces of property were sold yesterday.'

produced by Passive. In both (27) and (30), _las propiedades_, the initial 2 of _vender_, has advanced to 1. However, (30) has passive morphology, with _fueron_ (a form of the auxiliary verb _ser_) and _vendidas_ (the past passive participle of _vender_). In both (27) and (30), the finite verb is plural in agreement with its classic 1, _las propiedades_. The two constructions differ in another way. In an ordinary passive, the initial 1 can appear as the object of the preposition _por_ 'by' while this is impossible in the reflexive passive:

(31) Las propiedades fueron vendidas por los dueños ayer.
'The pieces of property were sold by the owners yesterday.

(32) *Las propiedades se vendieron por los dueños ayer.

The initial 1 of the construction illustrated by (27-29) is understood to be human. It never appears in surface structure in Spanish. We will refer to it as *PRO*. It is probably the entity that is realized as *on* in French and *man* in German.

The initial 2 that advances to 1 in sentences like (27-29) we will call the *pivot nominal*.

In § 5.2 we briefly sketch four arguments that the pivot nominals in (27-29) are canonical 1s. In § 5.3 we show that Reflexive Passive operates on the output of Clause Reduction, thus providing further evidence for Clause Reduction in Spanish.

5.2 The Subjecthood of the Pivot Nominal in Reflexive Passives

We now briefly sketch four pieces of evidence that the pivot nominal in reflexive passives is the canonical 1 of the verb and not its canonical 2. The first two arguments and the fourth argument are arguments that the pivot nominal is the classic 1 of its verb, from which it follows that it is also its canonical 1. The third argument is a direct argument that it is the canonical 1. Limitations of space prevent us from giving the arguments in full here; for the full arguments, see Aissen and Perlmutter (in preparation).

The first piece of evidence comes from word order. Spanish has considerable freedom of word order, but in the natural order used in many situations the classic 1 precedes the verb. The fact that the pivot nominal precedes the verb in (27-29) is thus evidence that it is the classic 1. It follows that it is also the canonical 1.

The second piece of evidence comes from the pronominal form of the pivot nominal in reflexive passives. Classic 2s appear as accusative pronouns, as in

(33) *Las* vendimos ayer.
'We sold them yesterday.'

But replacement of the pivot nominals in reflexive passives by accusative pronouns results in ungrammaticality:[11]

(34) *Se *las* vendieron ayer.

(35) *Se *las* cantan siempre primero.

Replacement of the pivot nominals in reflexive passives by their pronominal counterparts requires nominative pronominal forms, which are generally deleted by the rule of Subject Pronoun Drop. The resulting sentences are:[12]

(36) Se vendieron ayer.
'They were sold yesterday.'

(37) Se cantan siempre primero.
'They are always sung first.'

The pronominal form of the pivot nominal in reflexive passives is deleted by Subject Pronoun Drop, just as the pronominal forms of other classic 1s are. This is further evidence that they are classic

1s and hence also canonical 1s.

Third, 1s produced by Reflexive Passive undergo Subject-to-Subject Raising. Thus, the structure that underlies

(38) Parece que las propiedades se vendieron ayer.
'It seems that the pieces of property were sold yesterday.'

can also be realized as

(39) Las propiedades parecen haberse vendido ayer.
'The pieces of property seem to have been sold yesterday.'

in which *las propiedades*, the 1 produced by Reflexive Passive, has become the 1 of *parecer*, triggering the Verb Agreement rule that results in the plural form *parecen*. Since canonical 1s undergo Subject-to-Subject Raising, this is evidence that Reflexive Passive produces canonical 1s.

Fourth, 1s produced by Reflexive Passive undergo Head Start, a rule that applies only to classic 1s. As a result of Head Start, the classic 1 of the complement of *parecer* 'seem' appears in sentence-initial position, ahead of *parecer*, without triggering agreement on *parecer*. Head Start produces (40b) from the structure underlying (40a).

(40) a. Parece que los chicos están cansados.
'It seems that the children are tired.'

b. Los chicos parece que están cansados.

Note that the verb form *parece* is singular. That the pivot nominal in reflexive passives is the classic 1 can be seen in the fact that the structure underlying (38) can also be realized as:

(41) Las propiedades parece que se vendieron ayer.

It follows that the pivot nominal is the canonical 1 of a reflexive passive.

5.3 Interaction of Clause Reduction and Reflexive Passive

We have already shown that certain verbs of Spanish, which we call *trigger verbs*, trigger Clause Reduction, which makes dependents of the complement verb dependents of the trigger verb; this accounts for complement clitics showing up on the trigger verb in surface structure. In § 5 we have shown that Spanish has a rule of Reflexive Passive that advances the 2 of the verb to 1. Taken together, our rule of Clause Reduction and our rule of Reflexive Passive make further predictions. Under Clause Reduction, dependents of a complement verb become dependents of the trigger verb, the 2 of the complement of a trigger verb becoming the 2 of the trigger verb itself. And since Reflexive Passive advances the 2 of a verb to 1, it should advance the original complement 2 (the derived 2 of the trigger verb) to be *1 of the trigger verb*. We will now show that this prediction is correct.[13]

Consider the trigger verbs *empezar* 'begin,' *tratar* 'try,' and *querer* 'want.' If the prediction made jointly by Clause Reduction and Reflexive Passive is correct, there should be grammatical sentences in which the initial 2 of a verb embedded beneath one of the trigger verbs empezar, tratar, or querer undergoes Reflexive Passive and thus becomes the canonical 1 of the trigger verb. The correctness of this prediction is indicated by the following examples:

(42) Los mapas ya se empezaron a preparar.
the maps already began prepare
'PRO has already begun to prepare the maps.'

(43) Las canciones cortas se tratan de cantar siempre primero.
the songs short try sing always first
'PRO always tries to sing the short songs first.'

(44) Estas secciones de la ciudad se quieren eliminar sin
these sections of the city want eliminate without

que nadie lo sepa.
that no one it know
'PRO wants to eliminate these sections of the city without anyone knowing it.'

In these examples, los mapas, las canciones cortas, and estas secciones de la ciudad are classic and canonical 1s of the the verbs empezaron, tratan, and quieren respectively. Each of these nominals precedes the verb of which it is the classic 1, and in each case the verb is plural in agreement with its classic 1. Further, the pronominal forms that replace these nominals are nominative pronouns that undergo Subject Pronoun Drop, producing the following sentences:

(45) a. Ya se empezaron a preparar.
'PRO has already begun to prepare them.'

b. Se tratan de cantar siempre primero.
'PRO always tries to sing them first.'

c. Se quieren eliminar sin que nadie lo sepa.
'PRO wants to eliminate them without anyone knowing it.'

In addition, los mapas, las canciones cortas, and estas secciones de la ciudad can be shown to be canonical 1s in (42-44) by virtue of the fact that they undergo Subject-to-Subject Raising and classic 1s by virtue of the fact that they undergo Head Start.

(46) Subject-to-Subject Raising

a. Los mapas parecen haberse empezado a preparar.
'PRO seems to have begun to prepare the maps.'

b. Las canciones cortas parecen haberse tratado de cantar primero.
'PRO seems to have tried to sing the short songs first.'

c. Estas secciones de la ciudad parecen quererse eliminar sin que nadie lo sepa.
'PRO seems to want to eliminate these sections of the city without anyone knowing it.'

(47) Head Start

a. Los mapas parece que ya se empezaron a preparar.

b. Las canciones cortas parece que se tratan de cantar siempre primero.

c. Estas secciones de la ciudad parece que se quieren
eliminar sin que nadie lo sepa.

Our hypothesis makes another prediction - that if the matrix verb in (42-44) is replaced by a verb that does not trigger Clause Reduction, then such sentences will be ungrammatical. This prediction is also correct. We illustrate this with the verbs insistir en, 'insist on' and soñar con 'dream of,' shown in § 2 to be non-trigger verbs.

Consider the sentences

(48) Los turistas insistieron en visitar las pirámides.
'The tourists insisted on visiting the pyramids.'

(49) Sueño con solucionar esos problemas.
'I dream of solving those problems.'

If the subjects of (48-49) are replaced by PRO, the sentences that would be produced by Reflexive Passive are ungrammatical:

(50) *Las pirámides se insistieron en visitar.

(51) *Esos problemas se sueñan con solucionar.

The ungrammaticality of these examples follows automatically under our hypothesis, under which only the 2 of a verb can undergo Reflexive Passive. Since insistir en and soñar con do not trigger Clause Reduction there is no way that las pirámides and esos problemas can become 2s of these verbs, hence they cannot undergo Reflexive Passive. Thus *(50-51) are ungrammatical.

Finally, note that if several verbs that trigger Clause Reduction are embedded one beneath the other, the initial 2 of a verb several storeys down can become the 2 of a trigger verb several storeys up and can therefore undergo Reflexive Passive. This results in sentences like

(52) Estas secciones de la ciudad se quieren tratar de eliminar
sin que nadie lo sepa.
'PRO wants to try to eliminate these sections of the city
without anyone knowing it.'

Estas secciones de la ciudad, the initial 2 of eliminar, becomes the 2 of querer (two storeys up) by Clause Reduction, and thus becomes the canonical 1 of querer by Reflexive Passive. The result is (52). But if a verb that does not trigger Clause Reduction intervenes, there is no way that the initial 2 of eliminar can become the 2, and hence (by Reflexive Passive) the 1, or querer. As a result, the following sentence is ungrammatical:

(53) *Estas secciones de la ciudad se quieren insistir en
eliminar sin que nadie lo sepa.
'PRO wants to insist on eliminating these sections of
the city without anyone knowing it.'

In sum, in § 5.3 we have shown that the initial 2 of a complement verb can become the canonical 1 of a matrix verb by Reflexive Passive in those cases, and only in those cases, where it can become the 2 of that matrix verb by Clause Reduction. This is exactly what our hypothesis predicts.

6. Third Type of Evidence for Clause Reduction: Object Raising

6.1 Object Raising

Predicates like *fácil* 'easy,' *difícil* 'difficult,' and *imposible* 'impossible' take clausal 1s that can be extraposed, producing sentences like the following:

(54) Será difícil componer estas radios.
'It will be difficult to fix these radios.'

(55) Es fácil entender los resultados.
'It is easy to understand the results.'

(56) Fue imposible comer el postre.
'It was impossible to eat the dessert.'

Spanish has a rule of Object Raising that promotes the 2 of a verb embedded immediately beneath one of these predicates to 1 of the matrix predicate. Object Raising produces sentences like the following:

(57) Estas radios serán difíciles de componer.
'These radios will be difficult to fix.'

(58) Los resultados son fáciles de entender.
'The results are easy to understand.'

(59) El postre fue imposible de comer.
'The dessert was impossible to eat.'

In each of these sentences, the initial 2 of the complement is the canonical and classic 1 of the matrix clause, triggering agreement of the matrix verb and adjective. Thus, in (57) *serán* and *difíciles* are plural in agreement with *estas radios*, and in (58) *son* and *fáciles* are plural in agreement with *los resultados*. Note also that in Object Raising sentences the preposition *de* appears between the Object Raising trigger and the complement.

In all of the above examples, the 3 of the matrix clause (which is coreferential with the 1 of the embedded clause) is understood as PRO. Non-PRO 3s of the matrix clause appear in surface structure, preferably in clause-initial position:[14]

(60) A Francisco le será difícil componer estas radios.
'For Francisco it will be difficult to fix these radios.'

(61) A Francisco estas radios le serán difíciles de componer.
'For Francisco these radios will be difficult to fix.'

In § 6.2 we briefly sketch the evidence that the nominals promoted by Object Raising are canonical 1s. In § 6.3 we show that Object Raising operates on structures produced by Clause Reduction, providing further evidence for Clause Reduction in Spanish.

6.2 The Subjecthood of the Promoted Nominal in Object Raising Sentences

In § 6.2 we argue that the promoted nominal in Object Raising sentences is the canonical 1 of the matrix verb and adjective.[15] Under an analysis in which the verb and adjective are each the initial main verb of a clause, the promoted nominal is the classic 1 of the verb and the canonical 1 of the adjective. From this it follows that it is also the canonical 1 of the verb. In this discussion, however, we will ignore this difference between the verb and the adjective, speaking loosely of the promoted nominal as the canonical 1 of both.

In § 6.1 we pointed out that the promoted nominal in Object Raising sentences triggers agreement on the matrix verb and adjective. This is one piece of evidence that it is a canonical 1.[16]

In addition, the kinds of evidence used to show that the pivot nominal in 2-Advancement sentences is the canonical 1 of the verb can also be used to argue for the canonical 1-hood of the promoted nominal in Object Raising sentences.

First, the fact that it generally appears in preverbal position in surface structure follows automatically if it is a classic 1. From this it follows that it is the canonical 1.

Second, if the promoted nominals are pronominal, they are nominative and undergo Subject Pronoun Drop:

(62) Serán difíciles de componer.
'They will be difficult to fix.'

(63) Son fáciles de entender.
'They are easy to understand.'

Since classic 1s undergo Subject Pronoun Drop, this is evidence that the promoted nominal is the classic (and hence canonical) 1.

Third, the promoted nominals undergo Subject-to-Subject Raising, which produces the (b)-sentences below from the structures underlying the corresponding (a)-sentences:

(64) a. Parece que estas radios son difíciles de componer.
'It seems that these radios are difficult to fix.'
b. Estas radios parecen ser difíciles de componer.
'These radios seem to be difficult to fix.'

(65) a. Parece que los resultados son fáciles de entender.
'It seems that the results are easy to understand.'
b. Los resultados parecen ser fáciles de entender.
'The results seem to be easy to understand.'

Fourth, the promoted nominals can undergo Head Start, which produces the following sentences from the structures underlying (64a) and (65a):

(66) Estas radios parece que son difíciles de componer.

(67) Los resultados parece que son fáciles de entender.

6.3 Interaction of Clause Reduction and Object Raising

We have shown that Spanish has a rule of Object Raising that promotes the 2 of verbs embedded beneath Object Raising triggers. The rule of Clause Reduction and the rule of Object Raising, taken together, make further predictions. Under Clause Reduction, dependents of a complement verb become dependents of the trigger verb, the 2 of the complement of a trigger verb becoming the 2 of the trigger verb. And since Object Raising promotes the 2 of a verb, it should promote the original complement 2 (the derived 2 of the trigger verb). We will now show that this prediction is correct.

Consider a structure in which *difícil* has a clausal 1 with a Clause Reduction trigger and a complement embedded beneath it. One such structure can be realized, with Extraposition, as:

(68) Será difícil empezar a hacer estos mapas.
'It will be difficult to begin to make these maps.'

Since Clause Reduction makes the 2 of *hacer* the 2 of *empezar*, Object Raising should be able to make it the 1 of *difícil*. And it can:

(69) Estos mapas serán difíciles de empezar a hacer.
'These maps will be difficult to begin to make.'

Similarly, if we substitute the trigger verb *dejar* (de) 'stop' for *empezar*, the initial 2 of the verb embedded beneath it can be promoted by Object Raising:

(70) Es casi imposible dejar de comer estas galletas.
'It's almost impossible to stop eating these cookies.'

(71) Estas galletas son casi imposibles de dejar de comer.
'These cookies are almost impossible to stop eating.'

Clause Reduction makes *estas galletas* the 2 of *dejar*, and Object Raising makes it the 1 of *imposible*.

The Clause Reduction hypothesis, together with the rule of Object Raising, further predicts that if a verb that does not trigger Clause Reduction is embedded beneath an Object Raising trigger, then the 2 of an embedded verb will not be able to undergo Object Raising. We will illustrate this with the verbs *insistir (en)* and *soñar (con)*, which do not trigger Clause Reduction. These verbs can be embedded beneath *difícil*, as the following sentences show:

(72) Es difícil insistir en hacer tales cosas.
'It is difficult to insist on doing such things.'

(73) Es fácil soñar con componer sinfonías como esa.
'It is easy to dream of composing symphonies like that one.'

But, exactly as our hypothesis predicts, the corresponding Object Raising sentences are ungrammatical:

(74) *Tales cosas son difíciles de insistir en hacer.
'Such things are difficult to insist on doing.'

(75) *Sinfonías como esa son fáciles de soñar con componer.
'Symphonies like that one are easy to dream of composing.'

Our hypothesis likewise predicts that a nominal initially embedded several storeys down can become the 1 of an Object Raising trigger as long as all the intervening verbs are Clause Reduction triggers. And this is correct:

(76) Errores como esos son difíciles de seguir tratando de corregir.
'Mistakes like those are difficult to keep on trying to correct.'

But if one of the intervening verbs is not a Clause Reduction trigger, there will be no way for the embedded nominal to become the 2 of the verb embedded immediately beneath the Object Raising trigger, and the resulting sentence with Object Raising will be ungrammatical:

(77) *Errores como esos son imposibles de seguir insistiendo en corregir.
'Mistakes like those are impossible to keep on insisting on correcting.'

The ungrammaticality of *(77) follows from the fact that *insistir* does not trigger Clause Reduction.

In sum, in § 6.3 we have shown that in structures in which Clause Reduction has made the 2 of a verb embedded two storeys below an Object Raising trigger the 2 of the verb immediately beneath the Object Raising trigger, this 2 can become the matrix 1 by Object Raising. But in structures without Clause Reduction this is impossible. This is exactly what the Clause Reduction hypothesis predicts.

7. Further Evidence for Clause Reduction: Interaction of Reflexive Passive and Object Raising with Clitic Placement

7.0 Introduction

In § 5-6, we argued for Clause Reduction by showing that initial downstairs 2s behave like upstairs 2s by undergoing Reflexive Passive and Object Raising as 2s of the upstairs verb. Our formulation of Clause Reduction, however, makes not only the downstairs 2, but any dependent of the complement verb a dependent of the matrix verb. In this section we provide evidence that 3s of the complement become dependents of the matrix verb.

Crucial to the discussion is the assumption made explicit in § 3.3 that a pronominal dependent cliticizes to the verb of which it is a clausal dependent. Our argument focuses on the position of clitics corresponding to initial downstairs 3s in sentences with Clause Reduction. The Clause Reduction hypothesis predicts that in a Clause Reduction structure the initial downstairs 3 will cliticize only to the upper verb and not to the lower verb. In § 7 we show that this prediction is correct.

7.1 Clitic Placement and Reflexive Passive

Consider the sentences:

(78) a. Los dueños quieren alquilarles estas casas a los generales.
b. Los dueños les quieren alquilar estas casas a los generales.
'The owners want to rent these houses to the generals.'

The les in (78) is a clitic copy of the 3 los generales. (See footnote 14.) Since Clause Reduction is optional, there are two grammatical outputs. In (78a), without Clause Reduction, los generales is the classic 3 of alquilar and not of querer, and les consequently cliticizes to alquilar. In (78b), with Clause Reduction, los generales is the classic 3 of querer, and les consequently cliticizes to querer.

Now consider the structure that is like that of (78) except that the initial 1 of querer is PRO instead of los dueños. The structure to be considered has Clause Reduction and Reflexive Passive, with the result that the initial 2 of the complement is the classic 1 of querer. Now, our hypothesis that in sentences with Clause Reduction all dependents of the lower verb become dependents of the upper verb predicts that los generales, the initial 3 of alquilar, is a classic dependent of the upstairs verb, and that les will consequently cliticize to querer, the upstairs verb. And this is correct:

(79) Estas casas se les quieren alquilar a los generales.
'PRO wants to rent these houses to the generals.'

The fact that under Clause Reduction los generales must become a dependent of querer can be seen in the fact that its clitic copy les cannot cliticize to the lower verb:

(80) *Estas casas se quieren alquilarles a los generales.

The ungrammaticality of *(80) is an automatic consequence of our hypothesis. The fact that las casas is advanced to 1 of querer by Reflexive Passive shows that this is a structure with Clause Reduction. This being the case, los generales must be the classic 3 of querer, and as a result its clitic copy les must cliticize to querer rather than to alquilar.

The same thing can be seen in the following examples. Since Clause Reduction is optional, los estudiantes can be the classic 3 of either vender or empezar, with the corresponding differences in the placement of its clitic copy les:

(81) a. Esa compañía empezó a venderles estos libros a los estudiantes.
b. Esa compañía les empezó a vender estos libros a los estudiantes.
'That company began to sell these books to the students.'

But in a structure in which Reflexive Passive makes the initial 2 of vender the 1 of empezar, Clause Reduction must have made all dependents of vender dependents of empezar, with the result that the clitic copy of los estudiantes must cliticize to empezar and cannot cliticize to *vender*:[17]

(82) a. Estos libros se *les* empezaron a vender a los estudiantes.
'PRO began to sell these books to the students.'
b. *Estos libros se empezaron a vender*les* a los estudiantes.

Thus, the Clause Reduction hypothesis explains why the advancement of an initial complement 2 by Reflexive Passive in the upper clause restricts the placement of an initial complement clitic to the upper verb.

7.2 A Contrast Explained

We have seen that both Equi triggers like *querer* 'want' and Subject-to-Subject Raising triggers like *soler* 'tend' that trigger Clause Reduction make it possible for the initial downstairs 2 to become the canonical 1 of the upstairs verb by Reflexive Passive, as in the following examples:

(83) Secciones de la ciudad como esas se suelen eliminar sin que nadie lo sepa.
'PRO tends to eliminate sections of the city like those without anyone knowing it.'

(84) Secciones de la ciudad como esas se quieren eliminar sin que nadie lo sepa.
'PRO wants to eliminate sections of the city like those without anyone knowing it.'

However, there is an interesting contrast between these two classes of verbs. In the case of Subject-to-Subject Raising triggers, the clitic *se* that results from Reflexive Passive can also appear on the downstairs verb, while in the case of Equi triggers this is not possible:

(85) Secciones de la ciudad como esas suelen eliminar*se* sin que nadie lo sepa.
'PRO tends to eliminate sections of the city like those without anyone knowing it.'

(86) *Secciones de la ciudad como esas quieren eliminar*se* sin que nadie lo sepa.

At first glance, the contrast between (85) and *(86) might seem mysterious. This contrast, however, follows automatically from our hypothesis. In the case of Subject-to-Subject Raising triggers like *soler*, Reflexive Passive in the complement can make the initial 2 of the complement the canonical 1 of the complement. As a result of Subject-to-Subject Raising, the canonical 1 of the complement becomes the canonical 1 of the matrix verb. All of this happens in a sentence *without* Clause Reduction (which is optional). As a result, the initial 2 of the complement is the canonical 1 of the matrix verb, but the *se* that results from Reflexive Passive in the complement is still in the complement.[18] It consequently cliticizes to the complement verb, and sentences like (85) result. With an Equi trigger like *querer*, however, this is impossible. With such verbs, the only way that the initial 2 of the complement can become the 1 of the matrix verb is as a result of the combination of Clause Reduction and Reflexive Passive. And in such cases, since the resulting structure has only one clause no clitics can appear on the complement verb. These sentences like *(86) are ungrammatical.

Thus, contrasts like that between (85) and *(86) are an automatic consequence of our hypothesis. At the same time, they provide an additional piece of evidence for the syntactic difference between Equi triggers and Subject-to-Subject Raising triggers that is quite unlike any of the arguments offered in support of the distinction between these two classes of verbs in English.

7.3 Clitic Placement and Object Raising

Consider the structure that is actualized as:

(87) a. Va a ser difícil empezar a hacer*les* estos mapas a los profesores.
b. Va a ser difícil empezar*les* a hacer estos mapas a los profesores.
'It's going to be difficult to begin to make these maps for the professors.'

If *empezar* does not trigger Clause Reduction, *estos mapas* and *los profesores* are classic dependents of *hacer*, and *les* (the clitic copy of *los profesores*) consequently cliticizes to *hacer*, as in (87a). On the other hand, if *empezar* triggers Clause Reduction, *estos mapas* and *los profesores* are classic dependents of *empezar*, and *les* consequently cliticizes to *empezar*, as in (87b).

If *empezar* triggers Clause Reduction, *estos mapas* (as the 2 of *empezar*) can undergo Object Raising, becoming the 1 of *difícil*. Since this can happen only in a sentence with Clause Reduction, and since Clause Reduction makes both *estos mapas* and *los profesores* dependents of *empezar*, our hypothesis automatically predicts that the clitic copy *les* of *los profesores* cannot cliticize to *hacer*. And this is correct:

(88) *Estos mapas van a ser difíciles de empezar a hacer*les* a los profesores.
'These maps are going to be difficult to begin to make for the professors.'

Thus, our hypothesis automatically explains why, in Object Raising sentences like *(88), a clitic corresponding to the initial complement 3 cannot appear on the complement verb.

In Object Raising sentences, most speakers relax the requirement that the 3 have a clitic copy. Thus the structure underlying *(88) is actualized as:

(89) Estos mapas van a ser difíciles de empezar a hacer a los profesores.
'These maps are going to be difficult to begin to make for the professors.'

In sentences that are like (89) except that *los profesores* has a clitic copy, the clitic should attach to *empezar* because *los profesores* is a dependent of *empezar*. However, the resulting sentence is ungrammatical:

(90) *Estos mapas van a ser difíciles de empezar*les* a hacer a los profesores.

The ungrammaticality of sentences like *(90) is left unexplained by our hypothesis.

8. Clause Union in Causatives and Clause Reduction

The causative construction in a number of different languages has been the subject of considerable study in recent years. In Spanish, this construction is found with the verbs *hacer* 'make' and *dejar* 'let.'[19] In the framework of relational grammar being developed by Perlmutter and Postal, this construction is produced by the rule of Clause Union, which makes all dependents of the embedded verb into dependents of the matrix verb. When the complement is a 2-complement, Clause Union is universally characterized by the following:

(91) a. If the complement is intransitive, the 1 of the complement verb becomes the 2 of the matrix verb.

b. If the complement is transitive, the 2 of the complement verb becomes the 2 of the matrix verb and the 1 of the complement verb becomes the 3 of the matrix verb.

Clause Union produces sentences like the following:

(92) *Los* hice caminar toda la noche.
'I made them walk all night.'

(93) *Les* hice poner sus nombres en la lista.
'I made them put their names on the list.'

The complement 1 is the accusative pronoun *los* in (92) and the dative pronoun *les* in (93), indicating their status as classic 2 and 3 of *hacer*, respectively. With *dejar*, Clause Union is optional. In sentences with Clause Union, the complement 1 is the canonical 2 or 3 of the matrix verb, as in (92-93). Sentences without Clause Union may undergo Subject-to-Object Raising, which makes the complement 1 the 2 of *dejar* (regardless of the transitivity of the complement).

The question naturally arises as to the relationship between Clause Union in the causative construction and the process of Clause Reduction that is the topic of this paper. We characterized Clause Reduction by saying that dependents of the complement verb become dependents of the matrix verb. That is also the characterization of Clause Union in the causative construction. Viewed in the framework of relational grammar, the two must be the same rule. We will consequently begin to use the term *Clause Union* to refer to the process studied in this paper.

The trigger verbs considered in this paper trigger Clause Union *optionally*. In this respect, they are like *dejar* rather than like *hacer*.

There is another respect in which the trigger verbs studied in this paper differ from both *dejar* and *hacer*. Consider what happens with *querer*. There are grammatical sentences of Spanish in which the 1 of the complement of *querer* is distinct from the 1 of *querer*:

(94) Pilar quiere que mis primos pongan sus nombres en la lista.
'Pilar wants my cousins to put their names on the list.'

In (94), the complement is introduced by *que*, which is found in sentences with *querer* in which the complement and matrix 1s are distinct. But in sentences with *querer* that undergo Clause Union, the complement 1 has been deleted by Equi. Clause Union with *querer* is thus subject to the condition that the complement 1 must be deleted in order for Clause Union to be possible. This condition differentiates *querer* from *dejar* and *hacer*, accounting for the fact that sentences like (93) with *hacer* are not possible with *querer*:[20]

(95) *Pilar les quiere poner sus nombres en la lista a mis primos.

The other Equi triggers that trigger Clause Union that we have discussed in this paper are subject to the same condition as *querer*.

Since Clause Union is possible with these verbs only if the complement 1 is the victim of Equi, (91) holds with these verbs. Since the complement 1 is out of the picture, the only part of (91) that is relevant is that the complement 2 becomes the 2 of the matrix verb. Evidence that this is correct has already been presented in § 5–6.

It remains to consider the Subject-to-Subject Raising triggers that trigger Clause Union.

We could say that the following characterizes Clause Union with these verbs:

(96) The 1 of the complement verb becomes the 1 of the matrix verb and the 2 of the complement verb becomes the 2 of the matrix verb.

(96) describes the data. But if we adopt (96), we have it as an additional statement in addition to (91), which is needed independently.

(96) is not needed to make the complement 2 the 2 of the matrix verb, since (91b) does that. (96) is needed only to make the 1 of the complement the 1 of the matrix verb. But we already have a device that makes the 1 of the complement into the 1 of the matrix verb: Subject-to-Subject Raising, which these verbs trigger. Thus, if we say that Clause Union operates on structures produced by Subject-to-Subject Raising, (96) can be eliminated. Then we can say that Equi

triggers like querer 'want' and Subject-to-Subject Raising triggers like soler 'tend' allow Clause Union under exactly the same condition:

(97) Clause Union is possible with these verbs only if the complement has no 1.

Thus Clause Union will be possible with Equi triggers like querer only upon deletion of the complement 1 by Equi, and with Subject-to-Subject Raising triggers like soler only upon raising of the complement 1 to become the 1 of the matrix verb. Condition (97) governs Clause Union with both of these verb classes. And the fact that they are subject to this condition is what differentiates the behavior of these verbs with respect to Clause Union from that of hacer and dejar, which are not subject to (97).

9. A Proposed Universal of Grammar

We began this study with the observation that with certain matrix verbs, clitics that originate in the complement can appear on the matrix verb. We considered two hypotheses to account for this phenomenon of clitic climbing - one that posited a rule of Clitic Climbing and one that posited a rule of Clause Union. We have given evidence that in Spanish, the clitic climbing phenomenon is due to Clause Union and not to a rule of Clitic Climbing. We now wish to make an additional claim:

(98) The grammar of no natural language contains a rule of Clitic Climbing that moves clitics from a complement clause into the matrix clause.

We claim that in any language with the clitic climbing phenomenon, this is due to the rule of Clause Union that unites the two clauses into a single clause. Clitic Placement then places a clitic on the verb of which it is a classic dependent.[21] The fact that this happens in Spanish, we claim, is not an accident of Spanish grammar, but the only possibility.

(98) states the claim that Clitic Climbing is not a possible rule of human language. We thus adopt the view that particular languages are not free to make up rules, but rather must select their rules from a restricted inventory of rules put at their disposal by Universal Grammar.[22]

Our claim that the clitic climbing phenomenon is universally due to Clause Union makes certain testable predictions.

First, recall the constraints on placement of more than one clitic dependent of the same verb that were discussed in § 4.1, and the ungrammaticality of sentences with intersecting clitic climbing of the kind that were discussed in § 4.2. Our hypothesis that the clitic climbing phenomenon is universally due to Clause Union predicts that these phenomena will be universal. More specifically, in no language will sentences like those starred in § 4 be grammatical.

Our hypothesis that the clitic climbing phenomenon is universally due to Clause Union has two sides to it. On the one hand, we claim that no language can have a rule of Clitic Climbing. On the other, we propose that in languages in which clitics are placed on the verb, a clitic is placed on the verb of which it is a classic dependent. This makes predictions about the placement of clitics in sentences in which initial dependents of a complement verb become dependents of the matrix verb.

In the framework of relational grammar in which we are working, there are two (and only two) ways that dependents of a complement verb can become dependents of the matrix verb - by raising rules and by Clause Union. Our hypothesis about Clitic Placement predicts that in cases in which complement dependents become matrix verb dependents by a raising rule, the raised nominal, if pronominal, will cliticize in the matrix clause. Other dependents of the complement verb, which do not become dependents of the matrix verb, will cliticize in the complement.

In cases where a given verb triggers Clause Union, however, all dependents of the complement verb will become dependents of the matrix verb. Thus, if they are pronominal, they will cliticize in the matrix clause. There are two aspects of this prediction.

First, our hypothesis predicts that in a language with the clitic climbing phenomenon, the class of verbs that can be shown on other grounds to trigger Clause Union will be the same class of verbs that accepts complement clitics, while those verbs that do not trigger Clause Union will be the verbs that do not accept complement clitics.

Second, our hypothesis predicts that in a given sentence that can be accounted for only on the assumption that Clause Union has been triggered (such as the reflexive passives in Spanish discussed in § 5 and the Object Raising sentences discussed in § 6), clitics originating in a complement that has merged with the matrix clause can be placed only on the matrix verb and not on the complement verb. Any deviations from this will be due to rules or constraints for which there is independent evidence in the language in question.

Stated in the most general terms, our hypothesis predicts that whatever evidence there may be in a particular language to decide between the Clitic Climbing hypothesis and the Clause Union hypothesis will in fact decide in favor of the Clause Union hypothesis.

Footnotes

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1. For more extensive discussion of this phenomenon in both Spanish and Italian, see Aissen and Perlmutter (in preparation).

2. This structure ignores a number of things, such as the tense of the verb, the internal structure of the nominal *un regalo*, and the clitic copy *le* of the 3 *Mercedes*. Spanish has a rule that creates pronominal copies of 3s. These pronominal copies appear as clitics attached to the verb in surface structure. This copying rule is generally obligatory. It produces the clitics that are crucial to the argument in § 7.

3. Throughout this discussion, we speak of the grammatical relations that nominals bear to *criticar* and to *parecer*, ignoring the verb forms *fueron* in (3a) and *haber* and *sido* in (3b).

4. The class membership of verbs whose indirect objects control Equi is subject to extreme variation from speaker to speaker. For example, for many speakers *ordenar* 'order' is a trigger verb, while *sugerir* is a non-trigger verb. But there are many speakers for whom *sugerir* is a trigger verb, and some speakers for whom *ordenar* is a non-trigger verb.

We have noticed that for many speakers there are certain verbs whose class membership is not clear. In such cases, the speaker may have difficulty deciding whether a particular verb behaves like a trigger verb or a non-trigger verb, or may change his or her mind from week to week.

5. Not only do diagrams (14) and (15) ignore tense and the internal structure of nominals, they should not be interpreted as making any claims whatsoever about Equi or the representation of coreference. The complement subject deleted by Equi is represented here as a pronoun simply for convenience, but that does not mean that we claim that it is present in pronominal form in the structure. These diagrams also fail to indicate deletion by Equi.

6. The Multiple Clitic Constraint is not the only device one might use to rule out ungrammatical sentences like *(18-19) in the framework of transformational grammar. For example, one might postulate a structure in which all clitic dependents of a verb are dominated by a single node and then make Clitic Climbing move that node rather than moving the clitics individually. The point is that under the Clitic Climbing hypothesis, the ungrammaticality of *(18-19) does not follow automatically. Under the Clause Reduction hypothesis, on the hand, it does.

7. (21) does not indicate the consequences of Equi, which deletes the 1 of *permitir* and the 1 of *hacer*. Further, the 3 of *permitir* is arbitrarily represented in the clitic form *te* and the 2 of *hacer* is arbitrarily represented in the clitic form *lo*. This is done only for convenience and incorporates no claims concerning the actual structures involved.

8. As was indicated in § 2, there is a great deal of variation from speaker to speaker with respect to which verbs are trigger verbs, especially in the case of verbs that take an initial 3. Thus, while permitir is a trigger verb for many speakers, there are also speakers for whom it is a non-trigger verb. For such speakers, our argument can be reconstructed using a different verb in the examples.

9. It might be thought that the ungrammaticality of such sentences will follow from the conjunction of the following three things:

a) a cyclical theory of grammar

b) a statement that the rule of Clitic Climbing is cyclical

c) whatever device is used to account for the ungrammaticality of sentences like *(18-19) in § 4.1.

Thus, it might be thought that once lo moves to permitir on the second cycle, te and lo will have to move together thenceforth, or not move at all, and that *(26) will therefore not be generated. To see that this will not be sufficient to prevent the generation of ungrammatical sentences, consider:

(i) *Jorge dijo que te quiero permitirlo hacer.
'Jorge said that.....'

Even with a)-c), under the Clitic Climbing hypothesis ungrammatical sentences like *(i) can be generated in the following way:

(i) on the querer-cycle, te attaches to quiero.

(ii) on the cycle of dijo, lo attaches to permitir.

Thus, even with a)-c), it would still be necessary to posit something to prevent sentences like *(i) from being generated. To accomplish this, one could add:

d) a condition like the Strict Cycle Condition proposed by Chomsky (1973, 243).

However, this proposal is still untenable because in a cyclical theory of grammar, Clitic Climbing cannot be a cyclical rule. This conclusion was reached by Perlmutter (1973). We give here only one of his arguments, which is based on the Platense dialect of Spanish spoken in the Río de la Plata basin of Argentina and Uruguay.

The Platense dialect has an obligatory rule of Clitic Doubling that creates a pronominal copy of a definite animate 2; as a result of Clitic Placement, the pronominal copy appears on the verb in surface structure. This dialect thus has sentences like

(ii) Los vi a los chicos ayer.
'I saw the children yesterday.'

in which the los preceding the verb is a clitic copy of the 2 los chicos. Clitic Doubling in the complement of an Object Raising trigger can be seen in the sentence

(iii) Es difícil convencerlos a los chicos.
'It is difficult to convince the children.'

in which the clitic copy los of the 2 of convencer appears on convencer. Now, if Clitic Doubling is a cyclical rule, it will apply in the complement of sentences like (iii) on the first cycle. However, Object Raising might apply on the second cycle, producing the ungrammatical sentence

(iv) *Los chicos son difíciles de convencerlos.

The grammatical sentence that must result is

(v) Los chicos son difíciles de convencer.
'The children are difficult to convince.'

without a clitic copy. One could propose adding an ad hoc constraint to the grammar preventing Object Raising from applying if Clitic Doubling has applied in the complement, but even that would not work in dialects such as the Platense dialect in which Clitic Doubling is obligatory; with such a constraint in the grammar, (v) could not be generated. It is therefore necessary to conclude that in a cyclical theory of grammar, Clitic Doubling is a post-cyclical rule.

To show that Clitic Climbing cannot be a cyclical rule, it suffices to show that it applies to clitics produced by Clitic Doubling, as in:

(vi) a. Quiero seguir criticándolos a los candidatos.
'I want to continue criticizing the candidates.'

b. Quiero seguirlos criticando a los candidatos.

c. Los quiero seguir criticando a los candidatos.

Since Clitic Climbing cannot be a cyclical rule and b) states that it is, any account of the ungrammaticality of sentences like *(26) that depends on b) must be spurious.

For dialects of Spanish that do not have the rule of Clitic Doubling, the interaction of Cliticization and Object Raising can be used to show that Cliticization must be post-cyclical in a cyclical theory of grammar. It then follows that Clitic Climbing cannot be cyclical because it applies to clitics produced by Cliticization. However, limitations of space prevent us from giving the argument here.

10. Note that the Clause Reduction hypothesis also correctly predicts the ungrammaticality of the sentence

(vii) *Lo quiero permitirte hacer.

in which lo, the initial dependent of hacer, appears on the matrix verb querer, while te, the initial dependent of permitir, remains on permitir. Under the Clause Reduction hypothesis, the only way that lo can appear on querer in surface structure is if both querer and permitir trigger Clause Reduction. But then te would appear on querer as well, and the result would be (24).

11. (34-35) are actually generated by the grammar as grammatical sentences as a result of the application of the Spurious-*se* rule discussed by Perlmutter (1971, 20-25) and Aissen and Rivas (1975). This rule produces (34-35) from sentences with the clitic sequences *le las* or *les las* by changing the third person dative pronoun *le* or *les* to *se*. Thus (34-35) are grammatical with the meanings 'They sold them to him/her/them yesterday' and 'They always sing them to him/her/them first.' But the *se* in (34-35) cannot be the *se* found in reflexive passives, and as a result (34-35) do not have the meanings they would have if they were reflexive passives. Because they are ungrammatical as reflexive passives, we have starred them.

12. Subject pronouns can remain in surface structure only if they are animate and under emphasis or contrast. Since the pivot nominals in the sentences under discussion are inanimate, the nominative pronominal forms they would have cannot appear in surface structure, but rather must be deleted by Subject Pronoun Drop.

13. Arguments similar to these are offered by Rivas (1974) in support of the Verb Adjunction hypothesis.

14. Spanish has a rule doubling a 3 as a clitic pronoun. In most instances, this rule is obligatory. The *le* in (60-61) is the clitic copy of the 3 (*Francisco*).

15. Here again, we give the arguments for subjecthood in abbreviated form. To see them spelled out in greater detail, see Aissen and Perlmutter (in preparation).

16. Although we do not wish to argue for any particular analysis of Agreement here, it seems that in Spanish, Adjective Agreement makes a (predicate) adjective agree with its *canonical 1*, while Verb Agreement makes a verb agree with its *classic 1*.

17. Some speakers accept sentences such as

(viii) Estos libros se empezaron a vender a los estudiantes.
'PRO began to sell these books to the students.'

in which the 3 *los estudiantes* lacks a clitic copy. In this construction these speakers relax the requirement that the 3 have a clitic copy.

18. In using the phrase "is still in the complement" we are deliberately being imprecise because a discussion of the nature of Reflexive Passive in Spanish lies beyond the scope of this paper. Given our assumption that Clitic Placement places a clitic on the verb of which it is a dependent, it would have to be the case that the *se* that results from Reflexive Passive is a dependent of the verb. In fact, we claim that this is the case, since we would maintain that Reflexive Passive advances the 2 of a verb to 1, leaving

behind a copy as 2, which reflexivizes. As a result, we get the reflexive pronoun se, which is a dependent of the verb and cliticizes to it. Spanish Reflexive Passive is thus a member of the class of copy advancements postulated by Perlmutter and Postal (in preparation). To justify that here, however, would take us beyond the scope of this paper.

19. For studies of this construction in Spanish, see Aissen (1974a, 1974b) and Bordelois (1974).

20. *(95) might be grammatical for some speakers with the meaning 'Pilar wants to put their names on the list for my cousins,' but regardless of whether or not it can have this meaning, it definitely is not grammatical with a meaning synonymous with (94). Since this is the only point of relevance here, we have starred it.

21. In languages in which the clitic appears not on the verb itself, but rather in second position in the clause, the clitic will appear in second position in the clause defined by the verb of which it is a classic dependent. In the discussion that follows, we will speak loosely of Clitic Placement as placing clitics "on the verb," not bothering to repeat each time that in some languages clitics actually appear in second position in the clause in surface structure, rather than attached to the verb.

22. On this view of the nature of the options open to particular languages, see Postal (1970), Ross (1970), Bach (1971), Hankamer (1971), and Perlmutter and Orešnik (1973).

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REDUCED WH-QUESTIONS*

Robin Bechhofer

0. INTRODUCTION

0.0 Ross (1969) describes the rule of Sluicing as "deleting everything but the preposed constituent of an embedded question, under the condition that the remainder of the question is identical to some other part of the sentence or of a preceding sentence". (p. 252) He later notes that, under some circumstances, it is also possible for the deletion to leave behind a stranded prepostion.

The following sentences are presumed to be outputs of Sluicing.

(1) John went to Florida,
  a. but I don't know with whom ∅[1]
  b. but I don't know who ∅ with.

(2) John left for Florida. Do you know when ∅?

Ross demonstrates conclusively that Sluicing is a deletion process, and that it must crucially follow Question Movement. Several of his arguments are reviewed in Section 1.1 below.

0.1 Ross explicitly restricts the operation of Sluicing to embedded questions, but it is clear that similar patterns are found in direct reduced questions.

(3) John went to Florida.
  a. --With whom ∅?[2]
  b. --Who ∅ with?
  c. --When ∅?

One might suppose that Sluicing could account for all examples of reduced questions.

There are, however, contrasts between reduced indirect and reduced direct questions, as can be seen in the following examples.

(4) John was complaining.
    a. *,but I don't know about what. (✓what about)
    b. --About what?

(5) John bought a picture.
    a. *,but I don't know a picture of whom. (✓of whom)
    b. --A picture of whom?

(6) John received a letter.
    a. *,but I don't know from who. (✓from whom)
    b. --From who?

(7) John shot a duck.
    a. *,but I don't know why a duck.
    b. --Why a duck?

In each case, the indirect question is ungrammatical, while the corresponding direct question is good. It is demonstrated below that the ungrammaticality of the (a) sentences is predictable, based on certain properties of the rule of Sluicing. What needs to be explained is the acceptability of the (b) examples.

0.2 In this paper I present arguments that there are two processes involved in the production of reduced questions: Sluicing, and the ellipsis rule of Stripping. Given the different properties of the two rules, the contrasts in (4) through (7) can be explained.

Section 1 includes an investigation of Sluicing. I review some of the properties of the rule, and argue that

Sluicing can operate in contexts other than embedded questions. Examples (4) through (7) remain problematic, however; I explain why they cannot be accounted for with reference to Sluicing alone.

Stripping is introduced in Section 2. After discussing the characteristic behavior of the rule, I show that examples which seemed anomalous in the context of Section 1 can be explained if Stripping is involved in their derivation. There are certain environments in which only Sluicing can apply, and others which allow only Stripping. I provide evidence, however, that there also exist reduced questions which are ambiguously derived.

1. SLUICING

1.0 Introduction

In this section, Sluicing is investigated in some depth. Section 1.1 reviews three arguments from Ross (1969) that Sluicing follows WH-movement, and adds one additional argument. The discussion is limited to Sluicing in embedded questions. In Section 1.2, I demonstrate that Sluicing also applies in conjoined WH-questions, based on the characterization of the rule developed in 1.1. Section 1.3 includes a discussion of direct reduced questions. Although there is some evidence that Sluicing plays a role in their derivation, a number of facts remain unaccounted for. In Section 1.4, I summarize the positive findings of the previous discussion, and characterize the phenomena which remain to be explained.

1.1 Dependence of Sluicing on WH-movement

1.1.1 There are restrictions governing just what elements may be Pied-Piped in WH-movement. In some cases, the restrictions are dependent on the particular rule involved. For example, it is possible to Pied-Pipe a picture of whom in forming relative clauses.

(8) John, a picture of whom I own, is very handsome.

Question Formation, on the other hand, does not allow the NP constituent to be fronted.

(9) *A picture of whom do you own?

This ad hoc property of Pied-Piping must be stated with reference to the specific rule of Question Formation.

Notice that Sluiced sentences reflect the same restriction.

(10) I know he has a picture of somebody,
  a. but I don't know who.
  b. *but I don't know a picture of whom.

If Sluicing follows WH-movement, the ungrammaticality of (10b) is predictable. Since the constituent cannot be Pied-Piped in Question Formation, there will be no input to Sluicing in which a picture of whom is the fronted constituent. If, however, Sluicing were to precede WH-movement, a clear generalization would be missed. The ad hoc restriction concerning a picture of whom would have to be stated, not only on Question Movement, but on the rule of Sluicing as well. Ross concludes that these facts constitute evidence that Sluicing applies to the output of Question Formation.

1.1.2 The second argument is of a similar nature. Although Pied-Piping of single prepositions is generally optional, certain prepositions cannot easily be fronted. One such word is about; only the non-Pied-Piped version of the following question is fully grammatical.

(11) (John was complaining about WH+something)
    a. What was John complaining about?
    b. *About what was John complaining?

A restriction must be stated on Pied-Piping which disallows the (b) version above.

The same contrast can be observed in Sluiced sentences.

(12) John was complaining,
    a. but I don't know what ∅ about.
    b. *but I don't know about what ∅.

The ungrammaticality of (12b) follows automatically from example (11b), but only if Sluicing follows Question Formation.

1.1.3 With most prepositions there is an option to Pied-Pipe. Both (13a) and (13b) are possible realizations of the structure given.

(13) (John left with WH+someone)
    a. Who did John leave with?
    b. With whom did John leave?

The only difference between the examples is stylistic;

Pied-Piping leads to somewhat formal-sounding sentences.

Ross notes that, in questions with stranded prepositions such as (13b), Sluicing has the ability to delete everything except the WH-word and the preposition.

(14) John left, but I don't know who ∅ with.

The remnant, *who with*, is a non-constituent. It is only through Question Movement that the WH-word, which starts out to the right of the preposition, can end up on its left.

Example (14) demonstrates that both Sluicing and WH-movement have applied in its derivation, but it does not, in itself, provide evidence for the order WH-movement--Sluicing. It is conceivable, *a priori*, that the deletion applies first, following which, *who* is moved to the left over the preposition. However, in *1.1* and *1.2*, I provided arguments from Ross that this rule order was not possible. We must therefore conclude that Sluicing deletes the material between the fronted WH-word and the stranded preposition. The ability to perform such a deletion, which both removes and leaves a non-constituent, is a basic property of Sluicing.

1.1.4 The following argument is based on *whom* marking in English. Under most circumstances, the objective form *whom* has become all but obsolete in the spoken language. The (a) questions below are certainly grammatical, while the (b) questions are considerably strained.

(15) a. Who did John marry?
b. ??Whom did John marry?

(16) a. Who did John leave with?
b. ??Whom did John leave with?[3]

At best, *whom* marking is optional.

There is, however, a context in which *whom* is obligatory--when it follows a Pied-Piped preposition.

(17) a. *With who did John go home?
b. With whom did John go home?

(18) a. *To who did you give the book?
b. To whom did you give the book?

I claim that the object marking requirement is somehow a function of the movement process.

One might argue instead that *whom* was obligatory whenever it was in a configuration following a preposition. To distinguish between these two proposals, we must find a situation in which we can contrast moved and unmoved prepositional phrases.

Although WH-movement is mandatory in true requests for information, fronting is optional in echo questions.

(19) John saw Rumplestiltskin.
a. John saw who?
b. Who did John see?

Consider example (20), in which the WH-word follows a preposition. The *who* is unmoved in (a) and (b); in examples (c) and (d) Question Movement has applied.

(20) John ate with Rumplestiltskin.
a. John ate with who?
b. ??John ate with whom?
c. *With who did John eat?
d. With whom did John eat?

In unmoved position, *who* is preferable, even though it follows *with*. We must conclude that *whom* is only obligatory where it is included in a Pied-Piped prepositional phrase.

Sluiced questions preserve the contrast noted in examples (18) and (19).

(21) John left,
a. *but I don't know with who.
b. but I don't know with whom.

For some speakers, failure to do object marking does not produce as severe a violation when the rest of the clause is deleted, but (21b) is clearly preferable. This fact is only predictable if Sluicing is formulated to apply to the output of WH-movement.

1.1.5 The preceding arguments have shown that Sluiced questions have a number of properties in common with full questions, stemming from characteristics of Pied-Piping. Only if Sluicing applies to the output of Question Formation can this significant generalization be captured.

It is not necessary, however, to posit an extrinsic ordering between WH-movement and Sluicing; one can state the deletion rule so that only the post-movement form meets its structural description. Ignoring prepositions, Sluicing can be roughly stated as follows:

(22) $[X\ (NP_i)\ Y]\ Z\ [WH_i\ X\ \ Y] \longrightarrow [X\ (NP_i)\ Y]\ Z\ WH_i$

Sluicing is fed by Question Movement; the dependence between the rules results in the *intrinsic* order: Question

Movement--Sluicing.

To summarize: Sluicing has the following crucial properties. A) Formulation to apply to the output of WH-movement. B) Ability to leave behind a stranded preposition. C) Otherwise, deletion of all but the fronted constituent in a question clause. As a result of these properties we found that whom marking is obligatory in Sluiced prepositional phrases, Sluicing can produce a non-constituent remnant of the form "WH-word preposition", and (with the exception of stranded prepositions) if a given constituent cannot be Pied-Piped, it will not show up as a Sluicing remnant. In any other environment where Sluicing might apply, we predict that we will find similar properties to those observed in embedded questions.

1.2 Conjoined questions

1.2.0 In this section, I investigate multiple WH-questions of the following form:

(23) Where did you see John, and when?

(24) When did you break the glass, and with what?

Conjoined questions request two pieces of information about a single incident. A possible response to (23) would be

(25) I saw him in the Coop yesterday.

Example (23), which contains a conjunction, must be distinguished from a corresponding conjunction-less question, for which a paired response is required.

(26) Where did you see John when?
--I saw him yesterday in the Coop, and on Saturday at the bank.

Example (25) would not be an appropriate response to the question in (26)

1.2.1 I propose that questions such as the one in (23) are derived by reduction from full conjoined clauses.

(27) Where did you see John, and when ~~did-you-see-John~~?

Specifically, I claim that the deletion process involved is the rule of Sluicing.

If conjoined questions are indeed derived by Sluicing, we predict that they will share some of the characteristics of reduced questions in embedded contexts. On the basis of the discussion in Section 1.1, this prediction can be tested.

Sluicing has the ability to leave a stranded preposition untouched by deletion, producing the non-constituent remnant, "WH-word preposition", in reduced embedded questions. This characteristic pattern also emerges in conjoined questions, as can be observed in the following examples.

(28) (when did John leave) & (who did John leave with)
→ When did John leave, and who ∅ with?

(29) (why was John crying) & (what was John crying about)
→ Why was John crying, and what ∅ about?

An analysis according to which conjoined questions are reduced by Sluicing predicts that just this type of pattern will show up.

We have seen that it is impossible to get a Sluicing remant of the form about what. About does not Pied-Pipe, and thus cannot be part of the fronted constituent in the input to Sluicing. If conjoined questions are reduced by Sluicing, we predict that they will reflect this restriction.

(30) *Why was John complaining, and about what?

The status of (30) is exactly comparable to the corresponding embedded question (12b), repeated below.

(12) *John was complaining, but I don't know about what.

The ungrammaticality of (30) follows automatically if the deletion is performed by Sluicing.

Object marking of whom is obligatory in Pied-Piped prepositional phrases. Since Sluicing is fed by WH-movement, the requirement is reflected in Sluiced questions. We predict that failure to do object marking in conjoined WH-questions will produce violations just in case who is contained within a prepositional phrase.

(31) When did John leave,
a. *and with who?
b. and with whom?

Compare the example of Sluicing in an embedded question.

(21) John left,
a. *but I don't know with who.
b. but I don't know with whom.

If Sluicing is involved in the derivation of both (21) and (30), the similarity of grammaticality judgments is predictable.

1.2.2 Reduced WH-questions in conjoined structures exhibit the same patterns of grammaticality as do reduced embedded questions. The reduction processes involved are indistinguishable, except in terms of the context of application. In the absence of any evidence to the contrary, I conclude that Sluicing produces reduced questions in both embedded and non-embedded sentences, and that the deletion in conjoined questions is performed by the extended rule of Sluicing.

1.3 Simple direct reduced questions

1.3.0 Reduced questions also appear as simple requests for information, as in the following examples.

(32) John left.
  a. --When?
  b. --Why?

(33) Sue met someone nice.
  --Who?

In this section, I investigate the possibility that the questions in (32) and (33) are derived by Sluicing.

1.3.1 If direct reduced questions are produced by Sluicing, we expect to find the characteristic non-constituent remnant appearing, in the event that the preposition is not Pied-Piped. Direct questions do exhibit this "WH-word preposition" configuration.

(34) John left.
  (who ~~did-John-leave~~ with)
  --Who ∅ with?

(35) John was complaining.
  (what ~~was-John-complaining~~ about)
  --What ∅ about?

These examples constitute evidence that Sluicing is involved in the derivation of direct reduced questions.

We have seen that constituents which do not Pied-Pipe cannot be Sluicing remnants. But notice the following reduced questions.

(36) John bought a picture.
--A picture of whom?

(37) John was complaining.
--About what?

The facts presented in (36) and (37) are not consistent with a Sluicing analysis. We must conclude that these questions are not produced by Sluicing.

Similarly, object marking is not obligatory in direct reduced questions.

(38) John ate ate the Ritz.
--With who?

(39) John got a letter today.
--From who?

Whom is required in prepositional phrase Sluicing remnants. The questions in (38) and (39) cannot, therefore, have been derived by Sluicing.

1.3.2 Although the existence of the non-constituent remnant seemed to provide evidence that Sluicing was involved, the facts presented in examples (36) through(39) militate against a Sluicing analysis. Clearly there must be another rule which performs deletions in direct questions. For the time being, the question of whether or not Sluicing applies must remain unanswered.

1.4 Summary and additional problems

We have seen that Sluicing has several crucial properties which determine the shape of its remnants. The rule must be formulated to apply to the output of Question Formation, and to delete everything in the question clause except the preposed constituent and a stranded preposition. Reduced questions in embedded and conjoined contexts are derived by Sluicing.

Simple direct questions seem to present an anomaly; there is evidence both for and against a Sluicing analysis. The following examples, which I repeat from the introduction, clearly display the contrast between direct and indirect reduced questions.

(4) John was complaining.
  a. *,but I don't know about what.
  b. --About what?

(5) John bought a picture.
  a. *,but I don't know a picture of whom.
  b. --A picture of whom?

(6) John received a letter.
  a. *,but I don't know from who.
  b. --From who?

The indirect questions are ungrammatical due to Pied-Piping violations reflected in the Sluicing remnants. Reduced direct questions, however, behave differently.

Further evidence supporting this conclusion comes from the following reduced question, also repeated from above.

(7) John ate a duck.
  a. *,but I don't know why a duck.
  b. --Why a duck?

It is not surprising that (7a) is ungrammatical, under the assumption that reduction in embedded questions is performed by Sluicing. Sluicing can only leave behind preposed constituents and stranded prepositions. Clearly, *a duck* is not a preposition. Neither can it be part of a fronted constituent in the input to Sluicing.

(40) *I don't know why a duck John ate.

The reduction in example (7b) must be performed by a rule other than Sluicing.

Another troublesome contrast is presented below.

(41) John bought a picture,
a. *but I don't know a picture of whom.
b. but a picture of whom, I don't know.

We have seen why (41a) is ungrammatical. Since *a picture of whom* cannot be Pied-Piped, it cannot be a remnant of Sluicing. But given the ungrammaticality of (a), it is not clear why (b) should be acceptable. Ross, who notes contrasts like (41), writes "I confess to being totally baffled by such sentences." (p. 281) At this point we can only conclude that the patterns found in ~~the~~ direct questions (4b) through (7b) and (41b) have yet to be explained.

2. STRIPPING

2.0 Introduction

In this section, I introduce the rule of Stripping. Basic properties of the rule are discussed in 2.1, with reference to Stripping in non-WH-questions. In Section 2.2

I propose that Stripping also applies in WH-questions, and show how the properties of the rule can account for the anomalies noted in 1.4 above. Preposed indirect questions are discussed in Section 2.3

2.1. Basic properties of Stripping

2.1.1 Stripping was proposed by Hankamer (1971) to account for short answers to WH-questions. The rule deletes, under identity, everything from the answer except the constituent questioned by the WH-word.

(42) Who ate the eggplant?
--John ∅.

(43) What did John eat?
--∅ The eggplant.

Evidence that a deletion is involved is presented by Hankamer.

Stripping is a downward bounded rule. If a non-embedded question serves as the antecedent, it cannot trigger Stripping in an embedded sentence, even if the identity condition is met. The following examples illustrate this restriction.

(44) Who ate the eggplant?
a. --John ∅.
b. *--I think that John ∅.[4]
c. *--The fact that John ∅ is obvious.

The only grammatical response is (a), in which the deletion takes place in a non-embedded context.

Although the Stripping remnant usually consists of a single constituent, that corresponding to the WH-word of the question. Stripped sentences may also contain sentence adverbs.

(45) Who ate the eggplant?
    a. --Probably John.
    b. --Unfortunately John.

However, adverbs referring to the verb phrase cannot appear.

(46) What did John eat?
    *--The eggplant on Thursday.

Sentential adverbs are not an integral part of the Stripped sentence; they have a parenthetical reading which VP adverbs lack (see note 4). This property allows them to remain after Stripping.

The Stripping remnant may also contain an element which in some sense refers to a specific NP, although it does not appear in a position contiguous to the noun phrase in the full declarative sentence. The marker of negation (henceforth "NEG"), for example, must usually occur in post-auxiliary position, even if the sentence interpretation is one of constituent negation.

(47) a. *Not John ate the eggplant.
    b. John didn't eat the eggplant.

The written form (47b) is ambiguous between sentence negation and various possible constituent negations. The later interpretation can be isolated either by stress or by clefting.

(48) a. John didn't eat the eggplant.
    b. It wasn't John who ate the eggplant.
        (somebody else did)

Although NEG may not precede individual noun phrases in full declaratives, it does appear in this position in Stripped sentences.

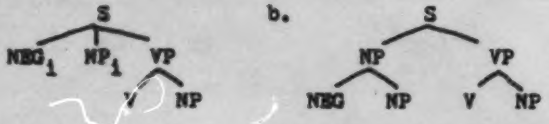
(49) Who ate the eggplant?
--(Certainly) not John!

Example (49) provides evidence against generating the NEG in post-auxiliary position. In that case, there would be no way of deriving the Stripped sentence, in which the NEG precedes the subject NP. The NEG must be to the left of the subject at the time Stripping applies.

Notice that the difference between sentence negation and constituent negation is not merely one of emphasis; the sentences have very different presuppositions. In the S-negation interpretation of (47b), nothing is presupposed. It is possible that the eggplant was not even touched. For the examples in (48), however, the speaker presupposes that somebody ate the eggplant, and asserts that the "somebody" was not John.

Under an assumption that presupposition is determinable at the level of deep structure, we must conclude that the sentences with constituent negation have a different underlying representation than S-negated sentences. Two possibilities come to mind which would provide (48) with a unique deep structure, as well as satisfy the requirement that NEG precede the subject when Stripping applies. The NEG could either be generated in sentence initial position, indexed to a specific constituent, or it could start out as part of the constituent itself. The two structures follow:

(50)



The Stripping facts provide evidence in favor of (50b). Since Stripping must generally be constrained to leave single constituents, special reference would have to be made to indexed elements if (50a) were the correct structure. Moreover, an extrinsic ordering relation would have to be stated between Stripping and NEG-placement, so as to insure that the NEG would appear to the left of the noun phrase in the Stripping remnant. If (50b) is the correct structure, however, no special statements are needed. Stripping simply leaves single constituents,-Before NEG-placement, this can include both NEG and the NP; but once the NEG has moved to post-AUX position, it cannot be left along with the NP. The derivation of (49) follows straightforwardly.

2.1.2 Stripping is not limited to answers to WH-questions. Similarly reduced sentences are evident in response to both yes/no questions and declaratives.

(51) Did John eat the eggplant?
 a. --Yes, John Ø.
 b. --No, Ø the squash.
 c. --Yes, Ø on Thursday.

(52) John ate the eggplant.
 a. --No, Ø the squash.
 b. --Yes, Ø in the kitchen.
 c. --Oh. On Thursday?
 d. --Oh. The yellow one?

The semantic function of the responses varies, but in each case the Stripping remnant either corresponds to a constituent in the antecedent (as in examples (51a,b) and (52a,d)), or it represents an optional complement of the verb not present in the preceding sentence (as in examples (51c) and (52b,c)). The trigger may be either a question or a declarative, as can the target.

Examples such as those presented in (51) and (52) have properties in common with Stripping from a WH-question antecedent. The deletion is similarly downward bounded.

(53) Did John eat the eggplant?
 a. *--The fact that John ∅ is obvious.
 b. *--No, I think that ∅ the squash.

Sentential adverbs and NEGs may appear in the Stripping remnant.

(54) John ate the eggplant.
 --No! Definitely not the eggplant!

It is not, however, generally possible to leave a non-constituent. The Stripping remnant may contradict (or affirm) one constituent of the antecedent, but not two.

(55) John ate the eggplant.
 a. --No, Bill ∅.
 b. --No, ∅ the squash.
 c. *--No, Bill ∅ the squash.

There is nothing semantically anomalous about (55c); the ungrammaticality of the example results from a syntactic constraint on the rule of Stripping.

Stripping operates most easily across discourse, but under restricted circumstances, it may apply into the second of two conjoined sentences. It appears that S-internal Stripping only operates into clauses headed by but--clauses which in some sense limit what is said in the first conjunct.

(56) John ate an eggplant,
a. but not a pear.
b. but not yesterday.
c. *and yesterday.
d. but only with great difficulty.
e. *and with great difficulty.

It is not possible to do Stripping into the second of two clauses conjoined by and, as examples (56c) and (56e) clearly demonstrate.

2.1.3 To summarize: Stripping has the effect of deleting everything in a sentence except one constituent, under identity with corresponding parts of a preceding sentence. The rule is downward bounded, and can only occur S-internally if the second clause is headed by but. The remnant produced by Stripping may replace a constituent of the antecedent clause, or it may represent a new verbal complement. Both the antecedent and the Stripped sentence can be either declaratives or questions.

2.2 Stripping in WH-questions

2.2.1 I propose that, given the characterization above, the rule of Stripping can also operate in WH-questions. The process is essentially the reverse of that proposed by Hankamer. The antecedent is a declarative; the Stripped sentence is a WH-question, with all but the WH-word deleted under identity.

If the WH-word represents a constituent not found in the antecedent, we find reduced requests for information.

(57) John went to Florida.
a. --When?
b. --Why?

On the other hand, if the antecedent contains a constituent corresponding to the WH-word, the interpretation is that of an echo question.

(58) John saw Rumplestiltskin.
--Who?

(59) John went to Timbuctoo.
--Where?

As in declaratives, it is not possible to leave two constituents after Stripping, despite a semantic plausability.

(60) Rumplestiltskin went to Timbuctoo.
*--Who where?

For the time being, I will make the neutral assumption that Stripping is unordered with respect to WH-movement. The deletion may take place whenever the conditions for its application are met; this may be before the WH-word has been fronted. It will become evident that this property of Stripping is crucial, if the facts are to be explained. The alternative hypothesis, that Stripping is extrinsically ordered after Question Formation, turns out to be untenable.

2.2.2 Given a rule of Stripping which can apply before WH-movement to produce reduced questions, we can account for those examples which presented problems for a Sluicing analysis. The crucial difference between the rules is their order with respect to WH-movement. Since Sluicing must apply to the output of Question Formation, it is necessarily affected by Pied-Piping restrictions. Stripping is able to avoid the restrictions by applying prior to movement.

Recall that the following examples (repeated from Section 1.3.1) could not be derived by Sluicing.

(35) John bought a picture. --A picture of whom?

(36) John was complaining. --About what?

The question remnants represent constituents which cannot be Pied-Piped, and therefore never appear as fronted material in the input to Sluicing. But (35) and (36) are derivable by Stripping, with deletion preceding Question Formation.

(61) John bought a picture.
(~~John bought~~ a picture of whom)
--A picture of whom?

(62) John was complaining.
(~~John was complaining~~ about what)
--About what?

Since no movement takes place, the Pied-Piping restrictions do not have an opportunity to be enforced, and the reduced questions are grammatical.

In echo questions, due to the optionality of WH-movement, the relationship between the full question and the Stripping remnant is more transparent.

(63) John bought a picture of Rumplestiltskin.
a. --John bought a picture of whom?
b. --A picture of whom?

The WH-word remains in its original location, and is therefore not subject to Pied-Piping constraints.

I demonstrated above that objective *whom* marking was obligatory in prepositional phrase Sluicing remnants, since they had undergone Pied-Piping. The fact that *whom* marking is not required in direct reduced questions is predictable--Stripping applies prior to movement.

(64) John went home.
(~~John-went-home~~ with who)
--With who?

(65) John left with Rumplestiltskin.
a. --John left with who?
b. --With who?

The WH-word follows *with*, but since the prepositional phrase is not Pied-Piped prior to Stripping, *whom* marking is not obligatory.

The arguments above require that WH-movement *not* apply--before or after deletion. We must bar the possibility of a vacuous movement process, Pied-Piping the constituent to the left, over nothing. Since the function of Question Formation is to move a WH-word to the front of a full sentence, there is no reason to believe, *a priori*, that it would apply to single prepositional phrase remnants. The examples presented above supply evidence that such single constituents do not provide an appropriate input to Question Formation.

Only in simple reduced direct questions do we find examples which cannot be explained by a Sluicing analysis. I have argued that the seemingly anomalous sentences are in fact derived not by Sluicing but by Stripping. In embedded questions, Stripping cannot apply to confound the picture; as we demonstrated in Section 2.1, the rule is downward bounded. Conjoined questions are also unambiguously derived by Sluicing. Stripping can only operate sentence-internally under very restricted conditions: the two clauses must be conjoined by *but*. Since there can be no Stripping remnants in embedded or conjoined contexts, we find no apparent counter-examples to a Sluicing analysis.

2.2.1 Because of certain properties of Stripping, the rule applies in simple direct questions, but not in conjoined or embedded structures. I have argued that Sluicing, on the other hand, does apply in both conjoined and embedded questions. Can simple reduced questions also be produced by Sluicing, or does Stripping bear the burden of deletion in this environment?

Certain sentences discussed above are derivable by Stripping, but not by Sluicing. However, there are also direct reduced questions which can *only* be derived by Sluicing. Consider the following:

(66) John went to Florida.
--Who ∅ with?

(67) John was complaining.
--What ∅ about?

The questions in (66) and (67) are characteristic examples of non-constituent Sluicing remnants.[5] The WH-word moves to the left by Question Formation, stranding the preposition; Sluicing deletes the material between the question word and the preposition.

If Stripping precedes movement, the preposition and the WH-word must remain in their original order.

(68) John went to Florida.
(~~John-went-to-Florida~~ with who)

Since prepositional phrases do not constitute an appropriate input to WH-movement, it is not possible for the *who* to hop leftward over *with*.

Since I have not stated any extrinsic rule ordering between Stripping and WH-movement, we must consider the possibility that WH-movement applies first, stranding the preposition. Recall, however, that Stripping cannot leave non-constituent remnants.

(69) John walked up the hill.
*--No, Sue down.

It follows that the deletion exhibited in example (70) must be produced by a rule other than Stripping.

(70) John left.
(who ~~did-John-leave~~ with)

It has been independently established that Sluicing has the ability to perform such deletions. We can therefore conclude that the direct reduced questions in examples (66) and (67) are unambiguously derived by Sluicing.

Both Stripping and Sluicing perform deletions in the context of direct questions. For certain examples it is possible to determine with certainty which process has applied.

(71) John was complaining.
  a. (~~John-was-complaining~~ about what)
    --Ø About what? must be by Stripping
  b. (~~John-was-complaining~~ about who)
    --Ø About who? must be by Stripping
  c. (what ~~was-John-complaining~~ about)
    --What Ø about? must be by Sluicing
  d. (who ~~was-John-complaining~~ about)
    --Who Ø about? must be by Sluicing

In examples (a) and (b), the question remnant cannot have undergone Pied-Piping, so must have been produced by Stripping, applying before Question Movement. The non-constituent remnants in (c) and (d), however, can only have been produced by Sluicing, applying after WH-movement.

However, if the question remnant is either a single WH-word or a Pied-Pipable constituent, it is impossible to determine whether the derivation was by Stripping or by Sluicing. The results would be identical.

(72) John kissed Mary.
  a. --When Ø? or --Ø When?
  b. --Where Ø? or --Ø Where?
  c. --For what purpose Ø? or --Ø For what purpose?

We must conclude that reduced questions like those in example (72) are ambiguously derived, even though they are not semantically ambiguous.

2.2.4 There is another reduction pattern which appears only in direct questions--the questioning of a particular constituent with why.

(73) John bought a duck.
a. --Why a duck?
b. *,but I don't know why a duck.

The remnant why a duck is not a possible output of Sluicing; the noun phrase cannot be Pied-Piped. Under the assumption that Sluicing produces reduced questions in embedded contexts, the ungrammaticality of (73b) is therefore expected.

I propose that Stripping, which operates only in non-embedded contexts, produces the reduced question (73a). Like NEG, why must appear in a specified location in the full sentence. The surface position for NEG is post-auxiliary; for why it is sentence-initial. But written why-questions are, like negatives, ambiguous. The speaker may wish to know the reason for the entire action, or may merely be questioning a particular constituent. The constituent questioning can be made unambiguous by stress or by clefting. Note the similar behavior of NEG and why.

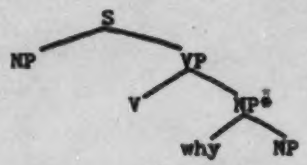
(74) a. John didn't buy a duck.
b. It wasn't a duck that John bought.
c. Not a duck!

(75) a. Why did John buy a duck?
b. Why was it a duck that John bought?
c. Why a duck?

The patterns are completely parallel, except in terms of the final position of the elements in the (a) examples.

By analogy with constituent negation, I propose that constituent-*why* is generated as part of the segment it modifies. The tree in (76) represents the underlying phrase-marker for the sentences in (75)

(76)



Stripping operates before WH-movement, and leaves the NP (marked with an asterisk) containing both *why* and *a duck*. If no reduction takes place, the WH-word is moved to S-initial position. Example (75c) is derived by Stripping, while (75a) has undergone WH-movement.

Other adverbial WH-words cannot enter into a structure such as (76). *When* and *where*, for example, must refer specifically to the action, rather than to a single noun phrase. It is not possible to focus a NP by clefting in a *when* or *where* question.

(77) John bought a duck.
a. *When was it a duck that John bought?
b. *Where was it a duck that John bought?
(compare)
c. Why was it a duck that John bought?

If *when* and *where* are never part of a NP constituent, we predict that they will not appear in Stripping remnants along with noun phrases.

(78) John bought a duck.
a. *When a duck?
b. *Where a duck?

It seems that _why_, like NEG, but unlike _when_ and _where_, may be generated as part of a noun phrase constituent. Stripping has the option of applying, before WH-movement, to produce a remnant of the form "why NP".

_2.2.5_ We have seen that Stripping performs deletions in direct questions, though not in embedded or conjoined structures. The patterns found can be explained only if Stripping may precede Question Formation. Since no movement takes place, Pied-Piping restrictions do not have a chance to apply, and thus a number of sentences are produced which could not be explained under a Sluicing analysis.

Sluicing applies in both embedded and non-embedded questions. Since Stripping is blocked in embedded and conjoined structures, reduced questions in these contexts are unambiguously derived by Sluicing. In direct questions, however, both rules may apply, and we find numerous remnants which are ambiguously derived by either Stripping or Sluicing.

2.3 Preposed indirect questions

_2.3.1_ Ross (1969) presents the following examples as a potential problem for a Sluicing analysis of indirect question reduction.

(79) John bought a picture,
    a. *but I don't know a picture of whom.
    b. *but a picture of whom he bought, I don't know.
    c. but a picture of whom, I don't know.

A picture of whom cannot be Pied-Piped, and thus never appears as the fronted constituent. This fact explains the ungrammaticaliy of (79a) and (79b), since they would both involve a derivation including Pied-Piping. But example (79c) is grammatical. Pied-Piping must not have applied.

We have seen that, although Sluicing cannot produce remnants of the form a picture of whom, Stripping can. Other patterns unique to Stripping also appear in preposed indirect questions, though not in the corresponding unmoved embedded questions.

(80) John was complaining.
a. *,but I don't know about what.
b. ,but about what, I don't know.
c. --About what?

(81) John went to Florida.
a. *,but I don't know with who.
b. ,but with who, I don't know.
c. --With who?

(82) John bought a duck.
a. *,but I don't know why a duck.
b. ,but why a duck, I don't know.
c. --Why a duck?

In each case, the preposed indirect question patterns like the direct question, rather than like its embedded counterpart. This result would follow if Stripping could apply into preposed indirect questions.

2.3.2 Hooper and Thompson (1973) discuss a rule of Complement Preposing, which relates the following sentences.

(83) a. I think that syntax and semantics are related.
b. Syntax and semantic are related, I think.

They suggest that in a structure to which Complement Preposing has applied, "there is no doubt that the complement proposition is the main assertion, and the original main verb merely parenthetical". (p. 474) There is also syntactic evidence that the complement is raised to non-embedded status. Notice that in example (83b), the preposed clause must lose its *that*-complementiser. In addition, the downward bounded rule of Stripping can apply into the preposed clause.

(84) What is John studying?
a. *--I think that ∅ syntax.
b. --∅ Syntax, I think.

Hooper and Thompson's discussion is limited to *that* complements, but it is clear that a similar preposing occurs with certain embedded question complements.

(85) a. Where John is going, I can't imagine.
b. What he is doing, I haven't the faintest idea.
c. Whether he will come or not, I don't know.

The preposing, and concomitant raising, of the indirect question allows Stripping to apply, where it was previously blocked.

I propose the following derivation for example(79c).

(86) John bought a picture, but
(I don't know (John bought a picture of whom))
by Preposing
(John bought a picture of whom, I don't know)
by Stripping
(~~John bought~~ a picture of whom, I don't know)
⟶ ∅ a picture of whom, I don't know.

A parallel derivation is available for examples (80c) through (82c). Notice that the second clause of each Stripped sentence is headed by but--a necessary condition for intrasentential Stripping.

2.3.3 Under certain circumstances, indirect questions may undergo Complement Preposing. In this way, they are raised to the status of a non-embedded sentence, becoming available to the downward bounded rule of Stripping. It therefore follows that preposed indirect questions will show Stripping patterns characteristic of direct questions, although embedded questions do not.

3. SUMMARY AND CONCLUSION

I have argued that two different deletion rules apply to produce reduce questions. Sluicing applies to the output of Question Formation, and therefore reflects restrictions on Pied-Piping. The rule operates, not only in embedded questions, but also in simple and conjoined non-embedded structures.

Stripping, due to its downward bounded nature, can only apply in non-embedded sentences. Since Stripping remnants do not reflect constraints on Pied-Piping, the rule must be allowed to precede Question Formation. In order to provide a unified characterization of Stripping, we must conclude that both NEG and why can be generated as part of noun phrase constituents. Preposed indirect questions assume the status of non-embedded sentences,.

permitting reduction by Stripping.

Certain direct question remnants can be definitely identified as having been produced by either Stripping or Sluicing. There are, however, reduced questions of ambiguous derivation, although they are not semantically ambiguous.

One of the crucial differences between Sluicing and Stripping is their order with respect to Question Formation. We have seen that the structural description of Sluicing insures that the rule must be fed by WH-movement. I repeat the rough formulation below:

(22) $[X\ (NP_1)\ Y]\ Z\ [WH_1\ X\ Y] \rightarrow [X\ (NP_1)\ Y]\ Z\ \ WH_1$

Since Sluicing applies only in questions, the WH-word is crucially referred to by the rule.

Stripping, on the other hand, is not restricted to question clauses. It merely deletes, under identity, that portion of a sentence which is identical to a preceding sentence. Hankamer states the rule roughly as follows.

(87) $[X\ (W)\ Y]_{S_1}\ \#\ [X\ V\ Y]_{S_2} \longrightarrow [X\ (W)\ Y]\ \#\ V$

condition: S_1 and S_2 are identical in structure

Clearly Stripping is free to apply before WH-movement in S_2. In fact, after movement, the structures of the two sentences are no longer identical.

The rule of Sluicing proposed by Ross has been extended to allow it to apply in non-embedded questions. Stripping has been extended to apply, not only in answers to WH-questions, but also in WH-questions themselves. Only an analysis which incorporates both Sluicing and Stripping can adequately explain all the varied patterns found in reduced WH-questions.

NOTES

* I would like to thank Judith Aissen, and especially Jorge Hankamer, for productive comments on an earlier version of this paper, and for engaging in many hours of fruitful discussion.

1. There is considerable dialectal variation in judgments of sentences involving Sluicing. For some speakers, Pied-Piping in embedded sentences is generally not very acceptable; for these people, (1b) is preferable. Other speakers cannot easily leave stranded prepositions after Sluicing, and therefore prefer (1a). These dialects do not counterexemplify any of the claims presented in the paper; however, certain arguments may be unavailable for some speakers.

2. Dashes preceding sentences indicate a change in speaker.

3. Although (16b) is marginally acceptable, it is not possible to do Sluicing, leaving the stranded preposition.

(i) *John left, but I don't know whom with.

It has been suggested to me that the ungrammaticality of (i) is due to a stylistic conflict. Pied-Piping produces marked sentences; they sound quite formal. The process of Sluicing and leaving a stranded preposition is somewhat colloquial. The proposal suggests that (i) is barred because it requires conflicting stylistic characteristics.

4. Without the complementizer, the sentence is good--but only with a heavy pause before *John*. In that case, *I think* takes on a parenthetical reading. Notice that Stripping is not possible into the complement of *regret*, which allows no parenthetical interpretation.

(ii) Who ate the eggplant?
*--I regret John ∅.

I will return to parentheticals in Section *2.3.2* below.

5. Notice that non-constituent remnants cannot be produced in echo questions, though prepositions may be stranded.

(iii) John ate with Rumplestiltskin.
a. Who did John eat with?
b. *Who with?

The ungrammaticality of (b) may be due to incompatible stress requirements. Nothing except the WH-word can receive stress in an echo question.

(iv) *Who did John eat wíth? (in response to (iiia))

In non-constituent remnants, the preposition *must* receive stress.

(v) John ate,
a. but I don't know whó wíth.
b. *but I don't know whó wĭth.

It is not possible for the preposition in (iiib) to be both stressed and stressless, so the example is ungrammatical.

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REDUCTION IN CONJOINED WH-QUESTIONS*

Robin Bechhofer

0.0 Introduction

There are several distinct types of questions in English containing more than one WH-word; three basic forms are illustrated below.

Pairing questions

(1) Where did you see John when?

(2) Who ate when?

(3) Who hit the target with what?

Internally conjoined (InCon) questions

(4) Where and when did you see John?

(5) Where and with whom did you get arrested?

(6) When and with what did you break the window?

Externally conjoined (ExCon) questions

(7) Where did you see John, and when?

(8) Who broke the glass, and with what?

(9) What have you bought, and for whom?

"Pairing questions", which lack a conjunction, are so called because they demand a response in which a list of pairings is made. For example, question (1) asks for a match-up of times and places; the following is a possible response.

(10) I saw John in the library on Tuesday, and at the Coop last night.

Pairing questions cannot generally, however, refer to a single incident. An answer consisting of only the first clause of (10),

(11) I saw John in the library on Tuesday.

would be anomalous as a reply to (1).[1]

Example (11) is appropriate as a response to either (4) or (7), however. Both externally and internally conjoined questions can refer to a single incident--in fact they must. The syntax of such conjoined WH-questions forms the central focus of this paper.

0.1 Browne's theory

0.1.1 Not all pairs of WH-words can be conjoined in InCon questions; the examples in (4) through (6) were specifically chosen so as to be grammatical. Compare the starred questions below.

(12) *What and when did he give you?

(13) *Where and when was he situated?

(14) *Who and with what broke the glass?

Wayles Browne, in a Linguistic Inquiry squib entitled "Conjoined Question Words and a Limitation on English Surface Structures" (1972), proposes an explanation for the ungrammaticality of (12) though (14).

Browne observes that neither of the WH-words may be a bound element of the verb, where "bound" means "obligatorily subcategorized". Give requires a direct object, be situated a locative, and break (like all verbs) requires a subject.

The WH-words in (4) through (6), on the other hand, all represent optional verbal complements.

Browne claims that while it is impossible to conjoin bound WH-words in English, Serbo-Croatian lacks such a restriction. He provides the following examples--Serbo-Croatian versions of (12) through (14).[2]

(15) Šta i kada ti je poklonio?
what & when to-you 3SG.AUX. gave

(16) Kada se i gde nalazio?
when & where be-situated

(17) Ko i čime je razbio staklo?
who & with-what AUX broke glass

Browne reports that examples (15) through (17) are perfectly acceptable.

There is another way of questioning single incidents in both English and Serbo-Croatian--by using externally conjoined WH-questions.

(18) E: What did he give you, and when?
SC: Šta ti je poklonio, i kada?

(19) E: Where was he situated, and when?
SC: Gde se nalazio, i kada?

(20) E: Who broke the glass, and with what?
SC: Ko je razbio staklo, i čime?

The questions in (18) through (20) request the same information as the ungrammatical (12) through (14), but are apparently not restricted to questioning optional complements.

0.1.2 Browne proposes that the ExCon questions are derived from full conjoined sentences, with elimination of that part of the second clause which "anaphorizes" the first clause. For example,

(21) Where did you see John, and when ~~did-you-see-John~~?

Furthermore, he claims that "conjunction of question words as in [(4)-(6), English; (15)-(17), Serbo-Croatian] are derived from conjunctions of clauses with such a reduction of the second conjunct." (p.225) I will refer to the process which derives InCon questions from the corresponding ExCon questions as "Swooping".

According to Browne's proposal, we have the following sample derivations.

(22) (where did you see J.) & (when did you see J.)
→(where did you see J.) & (when)
a. Where did you see John, and when?
→(where and when did you see J.)
b. Where and when did you see John?

(23) (what did he give you) & (when did he give it to you)
→(what did he give you) & (when)
a. What did he give you, and when?
→(what and when did he give you)
b. *What and when did he give you?

The final product of (23) is ungrammatical, since the conjunction includes the bound WH-word what. But Serbo-Croatian, Browne claims, can freely conjoin bound WH-words; thus a derivation corresponding to (23) would be correct for example (15).

0.1.3 Browne claims that the English restriction on conjoined WH-words is a reflection of a more general constraint on English surface structures. He states the constraint essentially as follows:

(24) *Browne's surface structure constraint (SSC)*
In English, obligatory complements of the verb are required to be overtly present, not only at the level of deep structure, but in surface structure as well.

As support for this general constraint, Browne points out that it is not possible to omit the direct object of a verb in answers to yes/no questions.

(25) Did he break the glass?
a. Yes, he broke it.
b. *Yes, he broke ∅.
c. Yes, he did.

Broke (unlike *did*) subcategorizes a direct object, and thus according to (24) cannot appear in surface structure without its obligatory complement.

Under Browne's analysis, the constraint in (24) is language specific; in particular, it does not hold in Serbo-Croatian. Notice that in Serbo-Croatian it *is* possible to omit bound elements in answers to questions.

(26) Da li je razbio staklo? --Da, razbio je ∅
Q-PART AUX broke glass yes broke AUX
"Did he break the glass?" "Yes, he broke ∅."

Although the direct object of *razbio* must be present in deep structure, it may be deleted on the surface.

Browne relates the restriction on bound WH-words to the surface structure constraint in the following way:

> The conjunction of two question words is no longer a constituent of the same type as either one separately; in [(14)] who and with what is neither an NP like who no an instrument phrase like with what. SC sentences can lack surface subjects, if the subject is present on a deeper level, but English cannot do without its surface structure subject...and [(14)] is unacceptable for this reason. (pp.225-6)

According to Browne, a parallel explanation is available for all ungrammatical conjunctions of WH-words in English.

Notice that the surface structure constraint does not affect the externally conjoined questions in examples (18) through (20). No conjunctions of question words are involved; each verb has its bound elements overtly present, and therefore both the English and Serbo-Croatian examples are grammatical.

0.1.4 In summary, Browne claims that there is only one relevant difference between English and Serbo-Croatian--English has a surface structure constraint which Serbo-Croatian lacks: bound elements must appear on the surface. Browne derives internally conjoined questions from the corresponding ExCon questions. The English SSC filters out those sentences with conjunctions of obligatory verbal complements.

Externally conjoined WH-questions are derived from full conjoined sentences. Since the proposed surface structure constraint is not applicable, ExCon questions in both English and Serbo-Croatian may contain bound question words.

0.2 Structure of the paper

In Sections 1 through 3, I investigate conjoined WH-questions in English. After discussing, in the first section, certain problems raised by Browne's analysis, I propose an alternative explanation for the facts, involving two distinct derivations for internally and externally conjoined WH-questions. I argue in Section 2 that the ExCon questions are derived by Sluicing; in Section 3 I provide evidence that InCon questions have undergone Conjunction Reduction. My analysis obviates the need for a surface structure constraint, and makes correct predictions in cases where Browne's analysis fails.

In Section 4, I bring evidence from Turkish to bear on the choice between analyses. Turkish, like Serbo-Croatian, allows the omission of bound elements in answers to questions; Browne's analysis predicts that conjoined WH-words in Turkish should pattern like those in Serbo-Croatian. It turns out, however, that Turkish exhibits the same ungrammaticalities as English--a result predicted by my analysis.

I return to Serbo-Croatian in Section 5. It appears that the situation is somewhat more complicated than Browne indicates. There do seem to be restrictions on conjoining bound WH-words in Serbo-Croatian, similar to those found in English and Turkish. Only under very specific semantic conditions can bound question words be conjoined; even then, the results are only marginally acceptable.

1. INADEQUACY OF BROWNE'S ANALYSIS

This section includes a critical discussion of Browne's analysis of conjoined WH-questions. In 1.1 I note some of the formal complexities of his proposed surface structure constraint; facts counter-exemplifying the SSC are presented in Section 1.2. As I demonstrate in 1.3, there is also reason to doubt Browne's proposed derivation of internally conjoined WH-questions.

1.1 Formal nature of the surface structure constraint

Browne claims that the constraint which bars conjunctions of bound WH-words in English is a surface structure constraint. It is not the case, however, that it can be formulated to refer exclusively to information present at the level of surface structure.

The constraint states that obligatory complements of the verb must be overtly present on the surface. To know what the subcategorization features of a particular verb are, however, one must either make reference to the level of deep structure, or carry the necessary information through the derivation. Either method is essentially global--thus Browne's analysis requires a global constraint, rather than one referring strictly to surface structure configurations.

Notice that, in the ungrammatical InCon questions, the deep structure object of the verb is still present.

(27) *What$_i$ and when did he give$_i$ you?

In order to adopt Browne's proposed constraint, we must have some motivated way of identifying possible candidates for the role of surface direct object; specifically, we need a principle which will exclude the what in example (27).

The task of identifying potential objects in surface structure is non-trivial as they may be located at an indefinite distance from their governing verbs.

(28) What did John say Sally thinks Bob ate?

To allow what to function as direct object in (28), but not in (27), a specific statement is needed to disqualify NP's in conjoined structures.

The surface structure constraint needs to be made more explicit. However, since the analysis to be presented below does not depend on the SSC, I leave the task of clarification to those who would uphold Browne's proposal.

1.2 Counter-examples to the surface structure constraint

In view of the following examples, the surface structure constraint cannot be correct as stated.

(29) Bill bought more glasses than John broke ∅.

(30) I liked the glass that Mary broke ∅.

Break subcategorizes a direct object, but in each of the cases above, the object has been deleted at some stage of the derivation. Browne's surface structure constraint incorrectly predicts that such examples should be ungrammatical. However, since target deletion rules operate only in specific contexts, the surface structure constraint could conceivably be modified to exclude examples such as (29) and (30).

Let us return to those structures to which the SSC was designed to apply. Even with reference to internally conjoined WH-questions, the constraint makes incorrect predictions. Consider the following acceptable InCon questions.

(31) Where and with whom do you live?

(32) How and like whom did he act?

These examples may seem somewhat strained, but compare them with the clearly ungrammatical (12) through (14).

Notice that both _live_ (in the sense of reside) and _act_ (in the sense of behave) require a verbal complement; either of two complement types will suffice.

(33) a. *You live.
b. You live in Cambridge.
c. You live with your mother.

(34) a. *He acted.
b. He acted stupid.
c. He acted like John.

Browne's argument (top of page 6) would read essentially as follows. _Where and with whom_ is neither a locative like _where_ nor a comitative like _with whom_. _Live_ requires one or the other, so (31) should be ungrammatical. Since the predictions of Browne's theory are not borne out, it must be rejected, and an alternate explanation must be sought for the ungrammaticality of examples (12) through (14).

1.3 Browne's proposed derivations

Let us now consider the derivation of conjoined WH-questions as proposed by Browne. Recall that he posits two reduction processes--one deletes material in the second conjunct of two conjoined questions, while the other "swoops" in the question word remaining in the second clause, conjoining it to the sentence-initial WH-word. According to Browne's analysis, ExCon questions are derived by means of the first rule; the production of InCon questions involves both processes.

Browne does not provide independent motivation for either rule--we do not know whether the processes are employed elsewhere in the grammar, or whether they are unique to conjoined WH-questions. Browne didn't characterize the rules explicitly, and consequently did not account for certain patterns among conjoined WH-questions.

Notice that WH-words and prepositions may occur in either order in the second conjunct of an externally conjoined question.

(35) a. When did John leave, and with whom?
b. When did John leave, and who with?

These facts do not counter-exemplify Browne's theory, but neither are they explained by it.

If internally conjoined questions were indeed derived from structures underlying ExCons, we would expect to find further reduced examples corresponding to each of the questions in (35). However, only (35a) corresponds to a grammatical InCon question.

(36) a. When and with whom did John leave?
     b. *When and who with did John leave?

The prediction made by the proposed derivation is not borne out; the analysis presented by Browne does not block reduction of (35b).

Additional properties of InCon questions remain unexplained if they are to be derived as Browne proposes. Certain combinations of question words are more felicitous than others, even when both WH-words represent optional verbal complements.

(37) When and where did you see John?

(38) ?When and with what did you break the glass?

If the corresponding ExCon questions were to display a similar contrast, Browne's proposal would be supported; we observe, however, that the externally conjoined examples are equally acceptable.

(39) When did you see John, and where?

(40) When did you break the glass, and with what?

The variation noted between (37) and (38) requires an explanation, but nothing in Browne's framework suggests one.

1.4 Summary

We have seen that Browne's analysis is inadequate on several counts. The proposed surface structure constraint requires clarification; it is not clear how potential bound elements are to be selected. More crucially, the constraint is counter-exemplified both by examples of target deletion and by internally conjoined questions with WH-words representing alternative verbal complements. InCon questions exhibit contrasts not paralleled by the corresponding externally conjoined examples--an unexplained finding if the two forms are assumed to be directly related.

2. DERIVATION OF EXTERNALLY CONJOINED WH-QUESTIONS

This section is devoted to a detailed examination of externally conjoined WH-questions; InCon questions are considered in Section 3. Browne suggests that ExCon questions are reductions of full conjoined questions, but he does not attempt to characterise the deletion rule precisely. I propose that the process involved is Sluicing, a rule which is independently motivated to derive reduced indirect questions.

In 2.1 I describe Sluicing in embedded contexts, reviewing several arguments presented by Ross (1969). Based on Ross's characterisation of Sluicing, I argue in Section 2.2 that the rule applies in conjoined WH-questions as well, reducing the second clause to produce ExCon questions. Section 2.3 includes a discussion of the degree of identity required for deletion by Sluicing. Finally, in Section 2.4, I consider the means of questioning more than one obligatory verbal complement.

2.1 Sluicing in embedded questions

Ross (1969) describes the rule of Sluicing as "deleting everything but the preposed constituent of an embedded question, under the condition that the remainder of the question is identical to some other part of the sentence or of a preceding sentence." (p.252) The process is exemplified below.

(41) a. John left, but I don't know with whom ~~he left~~.
b. John left, but I don't know with whom Ø.

(42) a. Sue met someone. Do you know who ~~she met~~?
b. Sue met someone. Do you know who Ø?

If Question Movement is accompanied by Pied-Piping, as in example (41), Sluicing deletes everything but the preposed prepositional phrase. The preposition may, however, be stranded in its underlying position.

(43) I don't know who John left with.

Ross notes that in such cases, the preposition can be left behind by Sluicing, producing a non-constituent remnant of the form "WH-word preposition".

(44) John left, but I don't know who Ø with.

The rule deletes the material between the fronted question word and the stranded preposition. The ability to perform such a deletion, which both removes and leaves a non-constituent, is a basic property of Sluicing.

Notice that I have assumed that Question Movement applies prior to Sluicing, moving the WH-word to the left of the preposition. Ross provides conclusive independent evidence that Sluicing must be fed by Question Formation; I reproduce one such argument below. (For a more complete review of the evidence, see Section *1.1* of the preceding paper.)

Although Pied-Piping of prepositions is generally optional, certain prepositions, e.g. *about*, cannot easily be fronted. Only the non-Pied-Piped version of the following question is fully grammatical.

(45) (John was complaining about WH+something)
    a. What was John complaining about?
    b. *About what was John complaining?

A restriction must be stated on Pied-Piping, disallowing the (b) version above.

Sluiced sentences exhibit a similar contrast.

(46) John was complaining,
    a. but I don't know what ∅ about.
    b. *but I don't know about what ∅.

If Sluicing is fed by Question Formation, the facts follow automatically; there will be no input to Sluicing corresponding to example (46b). If Sluicing were to apply first, however, a clear generalization would be missed. The idiosyncratic behavior of *about* would have to be stated with reference to both Sluicing and Pied-Piping. On the basis of these and related facts, Ross concludes that Sluicing must be formulated so as to apply to the output of Question Formation.

2.2 Sluicing in externally conjoined WH-questions

Ross explicitly restricts the operation of Sluicing to embedded questions, but I suggest that the rule should be extended to apply in non-embedded contexts as well. Specifically, I propose that Sluicing is involved in the derivation of externally conjoined questions.

If both embedded questions and ExCon questions are derived by Sluicing, we predict that they should share certain characteristics. Based on the discussion in Section 2.1, the prediction can be tested.

In sentences involving adverbial WH-words, movement applies to prepose the question word. In both embedded and conjoined questions, the Q-clause can undergo deletion under identity with a preceding sentence, leaving only the fronted WH-word.

(47) a. John left, but I don't know when ~~he left~~.
b. John left, but I don't know when ∅.

(48) a. Why did John leave, and when ~~did he leave~~?
b. Why did John leave, and when ∅?

This is the expected result of applying Sluicing.

When the WH-word originates in a prepositional phrase, there exists the option of Pied-Piping during Question Movement. First consider cases in which Pied-Piping occurs. In embedded contexts, Sluicing deletes all but the preposed prepositional phrase; we predict a similar result in ExCon questions.

(49) a. Why did John leave, and with whom ~~did he leave~~?
b. Why did John leave, and with whom ∅?

In both contexts, the consequences of deletion are the same.

In the event that Pied-Piping does not take place, we determined that Sluicing has the ability to leave the stranded preposition intact. If externally conjoined questions are derived by Sluicing, we expect to find the non-constituent remnant characteristic of reduced embedded questions.

(50) a. Why did John leave, and who ~~did he leave~~ with?
b. Why did John leave, and who ∅ with?

Examples like (49b) and (50b) were mentioned in Section 1.3 above. Under Browne's proposal we were unable to explain the coexistence of the two alternative orders; a derivation of ExCon questions involving Sluicing predicts them.

Finally, consider the following ExCon questions.

(51) a. Why was John complaining, and what ∅ about?
b. *Why was John complaining, and about what ∅?

The ungrammaticality of (51b) is predictable if externally conjoined questions are derived by Sluicing. *About* cannot be Pied-Piped, so there is no input to Sluicing which would produce (51b).

We have seen that reduced WH-questions in conjoined structures exhibit the same patterns of grammaticality as do reduced embedded questions. In order to capture the generalization, we must conclude that Sluicing operates in both embedded and non-embedded contexts[3]; the deletion in externally conjoined questions is performed by the extended rule of Sluicing.

2.3 Identity requirements for Sluicing

Ross stated that Sluicing deletes "under identity". In the externally conjoined questions thusfar considered, the deleted material has indeed been strictly identical to a portion of the preceding clause. I repeat several examples from Section 2.2.

(48) Why did John leave, and when ~~did-he-leave~~?

(49) Why did John leave, and with whom ~~did-he-leave~~?

(51) Why was John complaining, and what ~~was-he complaining~~ about?

In the above cases, each WH-word represents an optional verbal complement.

We have seen, however, that ExCon questions may contain bound WH-words in the first conjunct.

(52) Who broke the glass, and with what ∅?

(53) Where were they situated, and when ∅?

Consider the input to Sluicing for examples (52) and (53); the obligatory complements must be represented in both clauses.

(54) Who$_i$ broke the glass, and with what did he$_i$ break it?

(55) Where$_j$ were they situated, and when were they situated there$_j$?

Both (54) and (55) are grammatical sentences as they stand.

Sluicing applies to derive example (53) from the structure underlying (55). Notice that were they situated there$_i$ deletes under identity with where$_i$ were they situated. However, the two segments are not strictly identical--

they differ both in linear order and in the grammatical feature [+WH].

If Sluicing preceded WH-movement, the linear order discrepancy could be eliminated; but as was demonstrated above, there is conclusive evidence that movement applies first. Apparently linear order is irrelevant to the notion of identity required by Sluicing.

The difference in WH-ness cannot be explained away any more easily. The indexed constituents are coreferent, but only the adverb in the first clause is an interrogative. This discrepancy is effectively ignored by the Sluicing rule.

Notice that these flexibilities are not related to the cases of "sloppy identity" discussed in the literature. Ross formulates the condition on sloppy identity as follows: "Two otherwise identical strings which differ only in commanded pronouns...can be regarded as identical for the purposes of deletion." (p.268) As he points out, Sluicing does permit this brand of sloppiness.

(56) a. Bill knows how to crane his neck, but I don't know how ~~to-crane-my-neck~~.
b. Bill knows how to crane his neck, but I don't know how Ø.

We have seen that "identical" is a somewhat flexible concept for the purposes of deletion by Sluicing. The identity scan can ignore not only differences in commanded pronouns but linear order and WH-ness as well.

2.4 Questioning more than one obligatory complement

2.4.1 In Section 2.2 we encountered externally conjoined WH-questions in which both WH-words represented optional complements; in 2.3 we saw examples with one bound question word. What happens, however, if we wish to question two obligatory complements of the verb?

Example (57) represents the necessary pre-deletion structure for such a question.

(57) (who$_i$ bought it$_j$, and what$_j$ did he$_i$ buy)

Each bound part of the sentence must appear in each conjunct. The structure in (57) can undergo Sluicing--everything in the second clause gets deleted except the preposed question word. (Example (58) is provided for comparison.)

(58) (who left, and when ~~did-he-leave~~)
Who left, and when?

(59) (who bought it, and what ~~did-he-buy~~)
*Who bought it, and what?

As we can see, however, the product of Sluicing (57) is not acceptable.

The ungrammaticality of (59) is due to the violation of a surface constraint on anaphoric relations: anaphors may not both precede and command their antecedents. In example (59), *it* does precede and command *what*; thus the sentence is bad. Deletion of the offending pronoun is not possible either.

(60) *Who bought, and what?

There is no way to form a grammatical ExCon question. One is forced into a circumlocution.

(61) Who bought something, and what was it?

2.4.2 In such cases, however, the grammar seems to come to the rescue. Recall that pairing questions (with no conjunction) cannot usually refer to a single incident. The following sentence is anomalous since, while the syntax calls for a paired response, the semantics forces occurence interpretation.

(62) #Who ate the candy bar when?

For the syntax to fit the semantics, a conjoined question is required.

(63) Who ate the candy bar, and when?

However, just in those cases where it is impossible to formulate an externally conjoined question--if both WH-words are bound--questions of pairing-form *can* be interpreted as referring to single incidences if the context so indicates.

(64) I heard there was a murder in your neighborhood last night...Who killed who?

(65) Oh my God, I heard a crash. All right, you kids... Who broke what?

It appears that some transderivational information is necessary. Pairing-form questions can refer to single occurences *just in case* there exists no grammatical conjoined question to express the desired meaning.

2.5 Summary

To account for the marked similarities between reduced questions in embedded contexts and externally conjoined WH-questions, we have proposed that Sluicing applies in both environments. ExCon questions therefore do derive from full conjoined questions, with a reduction of the second conjunct by Sluicing. The rule applies to the output of Question Formation, deleting everything but the preposed constituent and, under certain circumstances, a stranded preposition.

Sluicing deletes under identity with a preceding clause; the conditions for identity, however, are quite flexible. Sloppy identity--a difference of commanded pronouns--is permitted for Sluicing to apply. Additionally, in those cases where the first conjunct of an ExCon question contains a bound WH-word, the scan for identity ignores both the linear position of the question word, and the presence or absence of the grammatical feature [+WH].

In externally conjoined WH-questions, at least one of the question words must represent an optional complement of the verb. If both WH-words are bound, it is impossible to derive a grammatical ExCon question, because of the precede/command constraint on anaphoric relations. In just those situations, when no ExCon question is available, it is possible to interpret pairing-form questions as referring to a single incident.

3. DERIVATION OF INTERNALLY CONJOINED WH-QUESTIONS

In this section, I return to a consideration of internally conjoined WH-questions. Recall that Browne proposes that InCon questions are formed by further reduction of the corresponding ExCon questions; under his analysis, conjunctions of bound WH-words are ungrammatical due to a constraint on English surface structures. We found no motivation for his proposed derivation; predictions which it made, were not borne out by the evidence. Moreover, the constraint he depends on seems to be incorrect.

I argue below that Sluicing plays no role in the derivation of InCon questions--they are derived, directly from full conjoined questions, by the rule of Conjunction Reduction. Under the Conjunction Reduction analysis, it is possible to dispense with the proposed surface structure constraint, and to account for those facts which Browne's analysis could not explain.

In Section 3.1 I review the general properties of Conjunction Reduction, as it applies in declaratives. InCon questions with unbound WH-words are examined in 3.2; I show how a derivation by Conjunction Reduction can account for the observed properties of the questions. In 3.3 I discuss the ungrammaticality of InCon questions with one bound WH-word, contrasting those with alternative complements. Having abandoned Browne's SSC, I explain in Section 3.4 why bound elements cannot be omitted in answers to questions.

3.1 Conjunction Reduction in declaratives

3.1.1 Chomsky (1957) states the rule of Conjunction Reduction essentially as follows[4]:

(66) $(X\ Y\ Z)_S$ & $(X\ W\ Z)_S \longrightarrow (X\ Y\&W\ Z)_S$
condition: Y and W must be constituents of the same type.

The rule takes two conjoined sentences differing in exactly one constituent, and forms a single sentence containing an internal conjunction of the unlike constituents. For present purposes, the exact mechanism of the reduction process is not relevant.

Several examples of Conjunction Reduction (CR) are presented below.

(67) (John hugged Mary)$_S$ & (Bill hugged Mary)$_S$
Y / Z   W / Z
→ (John and Bill hugged Mary)$_S$
Y & W / Z

(68) (John hugged Mary)$_S$ & (John kissed Mary)$_S$
X / Y / Z   X / W / Z
→ (John hugged and kissed Mary)$_S$
X / Y & W / Z

(69) (John hugged Mary)$_S$ & (John hugged Sue)$_S$
X / Y   X / W
→ (John hugged Mary and Sue)$_S$
X / Y & W

We see that the variables X and Z may be null.

3.1.2 Notice that in each of the above examples two distinct actions are involved. Whenever the conjoined elements have exactly the same semantic function in the sentence, no other interpretation is possible; one action is defined with respect to each alternative.

Consider, however, the following sentence with a time and place phrase conjoined.

(70) *I saw John yesterday and in the Coop.

This ungrammatical example differs from the others in two important respects: the conjoined constituents do not play exactly the same semantic role, and the primary interpretation is that of a single action of "seeing". A priori, either difference could be the source of the ungrammaticality.

If the conjoined constituents were to blame, we would expect the corresponding non-reduced sentence to be acceptable (retaining the single action interpretation).

(71) *I saw John yesterday, and I saw him in the Coop.

We see that example (71), with the desired interpretation, is just as anomalous as (70) (barring emphatic stress).

On the other hand, if the context clearly indicates more than one action, it is possible to conjoin different types of adverbial constituents.

(72) So you have seen that movie twice!

a. --Yeah, I saw it in 1969 and last week.
(two time phrases)

b. ?--Yeah, I saw it in 1969 and at that cinema which opened last week.
(time and place)

c. ??--Yeah, I saw it before I was married and with my husband.
(time and comitative)

Notice that there seems to be a gradient of acceptability--a conjunction of two time phrases is better than a conjunction of time and place, which is in turn more acceptable than a conjunction of time and comitative phrases. I suggest that the variation is due to semantic similarity. Time and place are both locatives, although one is temporal and the other spatial; they are thus more similar to each other than either is to a comitative.

As soon as we stray from the range of adverbials, we find that it is impossible to conjoin unlike constituents, even when two actions are indicated. Thus while the non-reduced version of the following sentence is grammatical, Conjunction Reduction is not permitted.

(73) a. I wrote an essay, and I wrote to John.
b. *I wrote an essay and to John.

We must clarify the notion of "constituents of the same type" stated in (66). In some sense, all adverbials are similar enough to be conjoined, though we find contrasts among them possibly stemming from differing degrees of similarity. Clearly, however, direct and indirect objects are different animals altogether--thus the ungrammaticality of (73b).

3.1.3 It is important to emphasize that, for Conjunction Reduction to apply, the conjoined sentences may only differ by one constituent. Specifically, it is not possible for one conjunct to contain an element lacking in the other.

Consider the results if we attempt to reduce sentences where one has an "extra" constituent.

(74) (John kissed Mary yesterday) & (John kissed Sue)
X / Y / Z X / W
→(John kissed Mary and Sue yesterday)
X / Y & W / Z

The reduced sentence can only have an interpretation where the "kissing of Sue" also took place yesterday, coming not from the structure in (74), but from the following:

(75) (J. kissed M. yesterday) & (J. kissed S. yesterday)
X /Y / Z X /W / Z

Notice that in (75) the two conjuncts differ only in their direct objects; no extra constituent is present.

Similarly, the following conjoined sentences cannot be reduced, since the second has an element lacking in the first.

(76) (John rolled a joint) & (John rolled the rug up)
X / Y X / W / Z
→ *John rolled a joint and the rug up.

Aside from the constituents to be conjoined, the two conjuncts must display strict structural identity.

3.1.4 We have seen that sentences which have undergone Conjunction Reduction must obligatorily involve two distinct actions. The conjoined constituents have to be "similar"; there seem to be varying degrees of similarity affecting the acceptability of reduced sentences. The sentences in the input to CR may only differ by one constituent; neither can contain a segment not represented in the other.

3.2 Conjunction Reduction with WH-questions

3.2.1 I propose that internally conjoined WH-questions are derived from full conjoined questions by the process of Conjunction Reduction. The input to the rule is two interrogative clauses differing only in the questioned constituent; the output is an InCon question. I will assume that Question Movement applies prior to reduction, though the order of the rules is not crucial to the analysis.

Several examples of Conjunction Reduction in questions follow below.

```
(77)  (where did you see John) & (when did you see John)
         Y  /      Z                W  /        Z
     →(where and when did you see John)
          Y    &   W  /       Z

(78)  (when did you leave) & (with whom did you leave)
        Y  /    Z                 W    /     Z
     →(when and with whom did you leave)
          Y   &      W   /     Z
```

Since the constituents to be conjoined are in sentence-initial position, the X variable of rule (66) is null.

Notice that the structural description for CR is only met if the preposition in (78) is Pied-Piped; otherwise the Z portions of the two conjuncts would not be identical. However if both clauses contain the same preposition, Conduction Reduction is possible if the preposition is stranded in each conjunct. Consider the following disjunctive example.

```
(79)  (who was John speaking to) OR (what was J. speaking to)
        Y /          Z                   W /          Z
          (who or what was John speaking to)
             Y  OR  W  /          Z
```

Alternatively, Pied-Piping could occur in both clauses, producing

(80) a. To whom or to what was John speaking?
     b. To whom or what was John speaking?

Crucially, the two conjuncts must be structurally identical.

Recall that under Browne's assumption that InCon questions were derived from ExCon questions, the following contrast was unexplainable.

(81) a. Where did John go, and who with?
     b. *Where and who with did John go?

The ungrammaticality of (81b) is predictable under the Conjunction Reduction analysis. There is no possible input to CR which would produce the example; (82) does not meet the structural description for reduction, and (83) would never arise.

```
(82)  (where did John go) & (who did John go with)
         Y  /     Z            W /     Z     / ?
```

(83) *(where did John go) & (<u>who with</u> did John go)

Under the Conjunction Reduction analysis of InCon questions, therefore, one expects example (81b) to be ungrammatical, though Browne's analysis predicts that it should be good. Clearly the facts support a derivation by Conjunction Reduction.

<u>3.2.2</u> I argued in Section <u>3.1.2</u> above that sentences containing an internal conjunction must refer to two

distinct actions. On the surface, it seems that internally conjoined questions violate this stipulation; clearly in the examples below only one action of "seeing" is involved.

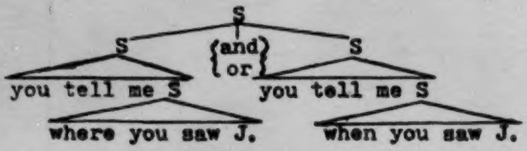
(84) a. Where and when did you see John?
b. Where or when did you see John?

I maintain, however, that InCon questions do refer to two distinct actions. Consider the following indirect questions.

(85) a. Tell me where and when you saw John.
b. Tell me where or when you saw John.

Example (85a) specifies two actions of "telling", while (85b) provides a choice between two such actions. The input to the rule of Conjunction Reduction can be represented as follows.

(86)



The two actions are defined with respect to the two direct object complements of the verb tell.

Semantically, the direct questions in (84) are identical to the requests in (85). If we posit an abstract performative in the deep structure of the direct questions, the similarity is made explicit. However, even without a syntactically "real" higher verb, it is clear that two actions of "telling" are semantically implied; the generalization can be maintained.

3.2.3 We are now in a position to explain the contrasts in acceptability among internally conjoined questions--contrasts not found in the corresponding ExCon questions.

(87) a. When did you see John, and where?
b. When did John leave, and with whom?

(88) a. When and where did you see John?
b. ?When and with whom did John leave?

If the questions in (88) were derived from those in (87), there would be no way of accounting for the contrast.

A Conjunction Reduction analysis, on the other hand, predicts the contrast observed in (88). We saw above that the similarity of conjoined constituents affects the acceptability of the reduced sentences. The difference between (88a) and (88b) is comparable to that between the declaratives in (72b) and (72c)--conjunctions of time and space phrases are preferable to conjunctions of time and comitatives.[5]

3.2.4 I have argued that internally conjoined questions are derived by Conjunction Reduction, directly from structurally identical conjoined interrogatives specifying two actions of "telling". Because of the stipulation that conjoined constituents be similar, we find contrasts among InCon questions--depending on the semantic similarity of the WH-words involved. The Conjunction Reduction analysis of InCon questions is clearly preferable to Browne's analysis; providing a motivated explanation for a greater range of facts.

3.3 Conjoined questions with bound WH-words

3.3.1 Browne's analysis of internally conjoined WH-questions was prompted by the observation that sentences like the following are ungrammatical.

(89) *Where and when was he situated?

(90) *Who and with what broke the glass?

In each case, the initial WH-word represents an obligatory complement of the verb. As I outlined in Section 0.1, Browne proposes to account for the facts with a surface structure constraint: obligatory verbal complements must be overtly present in surface structure. We found, however, that the constraint could not be maintained.

The ungrammaticality of examples (89) and (90) can be straightforwardly explained under the Conjunction Reduction analysis of InCon questions; no such SSC is necessary. Consider the conjoined clauses constituting the input to the reduction rule.

```
(91)  (where was he situated) & (when was he situated there)
         Y  /     Z               W  /     Z         /  ?
```

```
(92)  (who broke the glass) & (with what did he break the
        Y /      Z                 W    /   ?  /   Z  glass)
```

Since be situated subcategorizes a locative, a constituent representing place must appear in each conjunct. Similarly, the subject of break must be represented twice.

The conjoined questions in (91) and (92) are the putative sources for examples (89) and (90). But notice that neither

(91) nor (92) meets the structural description for the rule of Conjunction Reduction. For reduction to take place, sentences must differ by only one constituent; in these examples the second conjunct contains an "extra" element not matched in the first conjunct. Reduction is therefore blocked--examples (89) and (90) have no derivation.

It should be clear that a similar situation will arise whenever the first conjunct includes a bound WH-word. The second clause will have to contain a corresponding constituent--one that necessarily proves "extra" when the two conjuncts are matched up for Conjunction Reduction. It therefore follows that InCon questions with bound WH-words will invariably be ungrammatical, there being no way to derive them. We see that the observed facts are a direct result of an analysis by Conjunction Reduction, with no appeal to any surface structure constraint.

3.3.2 The above analysis holds for all cases in which the verb requires a specific complement. There are, however, examples of verbs (mentioned in 1.2 above) which require a complement, but are able to choose among several alternatives. WH-words representing these alternative complements can be conjoined in InCon questions.

(93) Where and with whom do you live?

Example (93) constitutes a counter-example to Browne's proposed surface structure constraint, as we saw above.

The derivation of (93) is no problem under the Conjunction Reduction analysis. The input to reduction is grammatical, and meets the structural description of the rule.

```
(94)  (where do you live) & (with whom do you live)
         Y  /     Z              W     /    Z
        →(where and with whom do you live)
            Y    &       W    /    Z
```

Similarly,

```
(95)  (how did he act) & (like whom did he act)
        Y /    Z              W    /    Z
        →(how and like whom did he act)
           Y   &      W    /    Z
```

The sentences produced are somewhat awkward, though clearly grammatical. Probably the awkwardness is a function of dissimilarity of conjoined constituents.

A disjunctive example conjoining two alternative direct objects can be derived in like manner.

```
(96)  (who did you see) OR (what did you see)
        Y /    Z             W  /    Z
        →(who or what did you see)
           Y  OR  W  /    Z
```

Each clause contains the required constituent, and there are no extra elements left over.

We see that a Conjunction Reduction analysis of InCon questions makes all the correct predictions.--grammatical sentences are easily derivable, while ungrammatical sentences lack a CR derivation. We can safely dispense with Browne's ill-fated surface structure constraint.

3.4 The ellipsis constraint

The surface structure constraint proposed by Browne was designed to explain not only patterns among internally conjoined WH-questions but also the impossibility of omitting obligatory complements in answers to yes/no questions. Browne correctly notes that only optional constituents may be deleted on the surface.

(97) Did John read that book on Thursday?
    a. --Yes, he read it then.
    b. --Yes, he read it Ø.
    c. *--Yes, he read Ø then.
    d. *--Yes, Ø read it.

Now that we have abandoned the surface structure constraint, we must seek an alternate explanation for the facts in (97).

The rule which deletes elements in answers to questions is one of a class of ellipsis rules discussed by Hankamer (1971). These rules delete constituents under identity, with control from a preceding structurally identical sentence. The ellipsis processes are downward bounded; thus if the controlling clause is non-embedded, no deletion may occur in an embedded context.

Hankamer proposes the following constraint on the entire class of ellipsis rules:

(98) No ellipsis rule may delete an obligatory comple-
of the verb while leaving the verb behind.

This constraint blocks the derivation of the ungrammatical (97c) and (97d) above. In addition, it explains the contrasts below.

(99) a. *Mary bought the eggplant on Friday,
and Bob cooked ∅ on Saturday.
b. Mary ate the eggplant on Sunday,
and Bob ∅ ∅ on Monday.

The direct object of the verb can only delete if the verb is deleted as well.

Notice that the ellipsis constraint assures that the obligatory complements of the verb will not be deleted prior to the application of Conjunction Reduction.

(100) a. What did you buy, and when did you buy it?
b. *What did you buy, and when did you buy ∅?

Thus (100b (which would meet the structural description for Conjunction Reduction) will never arise.

Since the constraint in (98) refers to a specific class of rules rather than to surface structures, we might expect non-ellipsis deletion rules to be able to delete bound constituents. As we observed above, target deletion rules, such as comparative and relative deletion, can have this effect.

(101) a. I like the book that Sue bought ∅.
b. Sue bought more eggplants than Bill cooked ∅.

The examples in (101), although counter-examples to Browne's surface structure constraint, are consistent with the constraint on ellipsis.

3.5 Summary

I have argued that internally conjoined WH-questions are derived by the same rule of Conjunction Reduction which operates in declarative sentences. The input to Conjunction Reduction is conjoined WH-questions differing only in the questioned constituent. It follows from the nature of the reduction process that the more similar the question words are, the more acceptable the InCon question will be.

The ungrammaticality of internally conjoined questions with bound WH-words follows automatically from the formulation of Conjunction Reduction. It is a further consequence of this formulation that WH-words representing alternative verbal complements can be conjoined.

We have concluded that there is no English surface structure constraint such as the one proposed by Browne. There is, however, a constraint on the class of ellipsis rules. Verbs may appear in surface structure without their obligatory complements, but only if the deletion has been accomplished by a non-ellipsis process.

4. CONJOINED WH-QUESTIONS IN TURKISH

In this section, I examine conjoined WH-questions in Turkish, bringing the facts to bear on the choice between Browne's analysis and my own. In Turkish, as in Serbo-Croatian, it is possible to omit bound elements in answers to yes/no questions.

(102) Bardaǧ-ɨ kɨrdɨ mɨ?
glass ACC he-broke Q-PARTICLE
"Did he break the glass?"

a. Evet, bardaǧɨ kɨrdɨ.
"Yes, he broke the glass."

b. Evet, Ø kɨrdɨ.
"Yes, he broke Ø."

In fact, deletion of unstressed pronouns is generally obligatory (note the absence of subject pronouns).

Since Turkish seems to have no surface structure constraint, Browne's analysis predicts we will find internally conjoined questions with bound WH-words. The Conjunction Reduction analysis does not relate ellipsis phenomena to InCon questions; it predicts that Turkish should pattern like English.

Internally conjoined WH-questions are investigated in Section 4.1. I present the Turkish facts, and show that they can be easily explained under the analysis forwarded in this paper. In Section 4.2 I demonstrate that Turkish has no rule of Sluicing, and consequently no externally conjoined WH-questions.

4.1 Internally conjoined WH-questions in Turkish

4.1.1 The sentences below demonstrate that InCon questions exhibit exactly the same patterns of grammaticality in English and in Turkish. If both WH-words represent optional complements of the verb, the InCon question is grammatical.[6]

(103) Hasan-ɨ nerede ve ne zaman gördün?
John ACC where & when you-saw
"Where and when did you see John?"

(104) Pencereyi ne zaman ve neyle kırdın?
window when & with-what you-broke
"When and with what did you break the window?"

Question words can also be conjoined if they represent alternative verbal complements.

(105) Nerede ve kiminle oturuyorsun?
where & with-whom -you-live
"Where and with whom do you live?"

These are just the cases which are grammatical in English.

Browne's analysis predicts that Turkish will have InCon questions with bound WH-words. But as is the case in English, the Turkish examples are not acceptable.

(106) *Sana neyi ve ne zaman verdi?
to-you what & when he-gave
*"What and when did he give you?"

(107) *Bardağı kim ve neyle kırdı?
the-glass who & with-what broke
*"Who and with what broke the glass?"

These facts constitute evidence against Browne's proposal.

4.1.2 I propose to extend the Conjunction Reduction analysis to cover Turkish InCon questions. The reduction rule, as formulated in (66) above, transforms conjoined clauses differing by exactly one constituent into a sentence containing an internal conjunction.

Following is an example of reduction in a declarative sentence.

(108) (Hasan kabağı yedi) & (Hasan patlıcanı yedi)
John squash ate John eggplant ate
X / W / Z X / W / Z
→(Hasan kabağı ve patlıcanı yedi)
X / Y & W / Z
"Hasan ate the squash and the eggplant."

We see that the Conjunction Reduction process operates identically in Turkish and English.

If the input to CR consists of two WH-questions, internally conjoined questions can be produced. The question words may represent either optional or alternative complements of the verb.

(109) (Ali Hasanı nerede gördü) & (A. H. ne zaman gördü)
Al John where saw A. J. when saw
X / Y / Z X / W / Z
→(Ali Hasanı nerede ve ne zaman gördü)
X / Y & W / Z
"Where and when did Al see John?"

(110) (Ali nerede oturuyor) & (Ali kiminle oturuyor)
Al where lives Al with-whom lives
X / Y / Z X / W / Z
→(Ali nerede ve kiminle oturuyor)
X / Y & W / Z
"Where and with whom does Al live?"

In each case the input questions differ only in the questioned constituent. The structural description for Conjunction Reduction is met; the conjoined clauses are reduced to form an internally conjoined WH-question.

However, if one of the question words represents an obligatory complement of the verb, reduction cannot take place. The two clauses differ by more than just the questioned constituent; in example (111), the second conjunct has an "extra" element representing the obligatory direct object of verdi.

(111) (Ali sana neyi verdi) & (Ali sana onu ne zaman verdi)
Al to-you what gave Al to-you it when gave
X / Y / Z X / ? / W / Z
"What did Al give you, and when did he give it to you?"

The conjoined sentences do not meet the structural description for Conjunction Reduction; example (106) consequently has no derivation. A similar argument can be constructed for all InCon questions with bound WH-words.

In order to account for the facts, we must assume that Conjunction Reduction precedes the dropping of unstressed pronouns. Only the presence of the direct object pronoun blocks reduction in example (111). If PRO-drop were to apply first, onu would not be present at the time of Conjunction Reduction; we would have no way of explaining the ungrammaticality of (106).

4.2 Lack of Sluicing in Turkish

Turkish has no rule to produce reduced questions in embedded contexts. The following example, corresponding to a Sluiced sentence in English, is ungrammatical.

(112) *Hasan birini gördü, fakat kimi bilmiyorum.
John someone saw but who I-don't-know
"John saw someone, but I don't know who."

We can conclude, on the basis of (112) and comparable examples, that Turkish lacks the rule of Sluicing.

In Section 1.2 above, I presented considerable evidence that externally conjoined WH-questions were derived by Sluicing. Since Turkish has no Sluicing, we predict that it will have no ExCon questions.

(113) *Hasani nerede gördün, ve ne zaman?
John where you-saw & when
"Where did you see John, and when?"

(114) *Bardaǧi kim kɨrdɨ, ve neyle?
glass who broke & with-what
"Who broke the glass, and with what?"

The prediction is borne out by the facts, thus lending support to the analysis.[7]

The lack of externally conjoined questions in Turkish deals a further blow to Browne's proposed derivation of InCon questions. Under his analysis, InCon questions derive from the corresponding externally conjoined examples. Clearly this cannot be correct for Turkish; the language does have internally conjoined questions, even though there are no corresponding ExCons. Since the two types of reduced questions are not directly related under the Conjunction Reduction analysis, the facts come as no surprise.

4.3 Summary

Turkish does not have a constraint on ellipsis, and therefore obligatory verbal complements can be omitted in answers to questions. This fact is, however, completely independent of the analysis of conjoined WH-questions.

We can conclude that Turkish, like English, derives its internally conjoined questions by Conjunction Reduction. The operation of the rule is identical in both languages, thus we expect the same patterns of grammaticality. Turkish has no Sluicing, and consequently no ExCon questions.

5. CONJOINED WH-QUESTIONS IN SERBO-CROATIAN

In this section I return to a consideration of Serbo-Croatian conjoined WH-questions. Recall that Browne reports conjunctions of bound WH-words to be grammatical in Serbo-Croatian. Under his analysis the facts are predictable, since Serbo-Croatian has no surface structure constraint on obligatory complements.

However, we found it necessary to reject Browne's analysis, substituting instead a Conjunction Reduction derivation of internally conjoined questions. The CR analysis predicts that bound question words will not form conjunctions, as we have seen in English and Turkish. Browne's examples, if correct, constitute counter-examples.

Further informant work has produced judgments in conflict with those presented by Browne--judgments which are predicted by the Conjunction Reduction analysis. It appears, however, that under certain highly marked discourse conditions, conjunctions of bound WH-words are marginally acceptable. Only by isolating the factors involved can we hope to arrive at the correct analysis.

In Section 5.1, I consider conjoined WH-questions produced in normal discourse, based on the judgments of my informants. Section 5.2 includes a discussion of quiz questions in Serbo-Croatian.

5.1 Conjoined WH-questions in normal discourse

5.1.1 I argued above that externally conjoined WH-questions are derived by Sluicing. The analysis predicts that a language will only have ExCon questions if it has an otherwise motivated rule of Sluicing. As we saw in Section 4.3, Turkish has neither Sluicing nor externally conjoined WH-questions.

Serbo-Croatian does have a Sluicing rule which produces reduced questions in embedded contexts.

(115) Ivan je otišao , ali ja ne znam s kim.
John AUX go-home but I NEG know with whom
"John went home, but I don't know with whom."

As in English, the rule deletes all but the fronted constituent in a question clause.

We predict, therefore, that externally conjoined questions should be grammatical in Serbo-Croatian. My informants accepted all the examples of ExCon questions given by Browne ((18) through (20) above). I repeat one of the sentences below.

(18) Šta ti je poklonio, i kada?
what to-you AUX give & when
"What did he give you, and when?"

We see that the prediction is correct; Serbo-Croatian has a rule of Sluicing, and consequently exhibits grammatical externally conjoined WH-questions. This correlation lends support to the proposal that ExCon questions are derived by Sluicing.

5.1.2 Under my analysis, internally conjoined WH-questions are derived, not by Sluicing, but by the rule of Conjunction Reduction. The conjoined clauses constituting the input to the reduction process must differ by no more than one constituent; consequently we only expect to find InCon questions in which the WH-words both represent optional complements of the verb. In cases where one of the question words is bound, reduction is blocked, since an "extra" element will necessarily be present in the other conjunct.

In Serbo-Croatian, as in English and Turkish, internally conjoined questions with no bound WH-words are grammatical.

(116) Gde i kada si ih video?
where & when 2SG.AUX them saw
"Where and when did you see them?"

The acceptability of (117) is predictable from the formulation of the reduction rule.

Browne reports that examples (15) through (17) above (InCon questions with bound WH-words) are completely acceptable; my informants, however, definitely reject them as ungrammatical. One such example is repeated below.

(17) *Ko i cime je razbio staklo?
who & with-what AUX broke glass
"Who and with what broke the glass?"

The following sentences make the point very clearly. They differ only in their verbs--put, but not break, subcategorizes a locative. My informants judged example (117) as grammatical, but rejected (118).

(117) Gde i kada si razbio staklo?
break
"Where and when did you break the glass?"

(118) *Gde i kada si stavio staklo?
put
"Where and when did you put the glass?"

In both English and Serbo-Croatian, the example with a bound question word is unacceptable.

In Browne's framework there is no way of accounting for the contrast between (117) and (118); the Conjunction Reduction analysis predicts it. According to the judgments made by my informants, the Serbo-Croatian facts are completely consistent with the analysis forwarded in this paper.

5.2 Quiz questions in Serbo-Croatian

Although my informants are not able to conjoin bound WH-words in normal discourse, they both report the following example to be marginally acceptable under very specific discourse conditions.

(119) ?Ko i kada je napisao knjigu?
write book
*"Who and when wrote that book?"

Note that the question is not grammatical in English, since who represents an obligatory constituent.

Example (119) is considerably more strained than (116), however. It could not be uttered in conversation; the only conceivable context is one where a teacher is questioning a class about some facts they were expected to memorize.

The acceptability of such quiz questions seems to be influenced by certain semantic factors. Although (119) is marginally good, the following syntactically similar example is ungrammatical.

(120) *Ko i gde je napisao knjigu?
*"Who and where wrote that book?"

Slightly better than (120) is

(121) ??Ko i gde je ubio Kenedija?
killed
*"Who and where killed Kennedy?"

I have no convincing explanation for the contrasts; my informant speculates that the likelihood of a particular question being asked determines its degree of acceptability.

It is puzzling why such examples should be acceptable at all. However, given the contrasts between them, it is clear that a purely syntactic treatment will not suffice. I will not attempt to provide any explanation; I must just conclude that quiz questions are governed by different principles than questions occuring in normal discourse.[8]

5.3 Summary

It is not clear how the conflicts in judgment between Browne's informants and my own are to be viewed. Perhaps Browne was not careful enough to isolate the relevant semantic factors, or perhaps there is true dialect variation. The need for further informant work is indicated.

On the basis of my work, however, I conclude that

Serbo-Croatian (except in the restricted realm of quiz questions) does not differ from English and Turkish in any important respect. Externally conjoined WH-questions are derived by the otherwise motivated rule of Sluicing, while internally conjoined questions are derived by Conjunction Reduction. The formulation of the CR rule makes it possible to predict the fact that conjunctions of bound WH-words are ungrammatical in all three of the languages discussed.

6. SUMMARY AND CONCLUSION

In a squib written in 1972, Waylee Browne presented an analysis of conjoined WH-questions, based on data from English and Serbo-Croatian. He proposed that internally conjoined questions were derived from externally conjoined examples, which were in turn to be derived from conjunctions of interrogative sentences. In order to explain the ungrammaticality of InCon questions with bound WH-words, Browne proposed a constraint specific to English, requiring obligatory complements of the verb to be present in surface structure. He suggested that the constraint also accounted for the fact that bound elements could not be deleted in answers to questions.

We determined that Browne's surface structure constraint could not be maintained; it was counter-exemplified by examples of target deletion, and by internally conjoined WH-questions involving alternative verbal complements. Moreover, Browne's analysis made predictions about Turkish questions which were not borne out by the evidence. We also saw that the derivation proposed by Browne made incorrect predictions about the relationship between internally and externally conjoined questions.

I advanced an alternate analysis which obviates the need for any surface structure constraint. The two different types of conjoined WH-questions are to be derived by two distinct processes: the externally conjoined questions by Sluicing, and the internally conjoined questions by Conjunction Reduction. Each of the rules is independently motivated in the grammar.

Sluicing, the rule proposed by Ross to derive reduced embedded questions, applies to the output of Question Movement, deleting everything but the preposed constituent (and sometimes a stranded preposition). Because of the flexibile conditions on identity, it is possible to get externally conjoined WH-questions in which the initial WH-word represents an obligatory complement of the verb. Turkish has no rule of Sluicing, and predictably no ExCon questions.

Conjunction Reduction operates in both declaratives and questions, reducing two clauses differing by exactly one constituent to form a single sentence with an internal conjunction of the unlike elements. It follows from the formulation of the rule that while unbound and alternative WH-words can be conjoined, question words representing obligatory complements cannot. We found that the more similar the conjoined question words are, the better is their conjunction.

Languages do differ in their ability to omit bound elements in answers to questions, due to language specific constraints on ellipsis. However, the ellipsis facts are not related to the analysis of conjoined questions; English, Turkish and Serbo-Croatian display the same patterns of ungrammatical InCon questions, although only English has a constraint on ellipsis processes.

In conclusion, I would like to propose that the analysis advanced in this paper is universal: internally conjoined questions are derived by Conjunction Reduction, and externally conjoined questions are derived by Sluicing. The existence of the questions is thus dependent on the existence of the appropriate reduction rule. This analysis has led to a motivated and unified account of conjoined WH-questions in English, Turkish and Serbo-Croatian; I suggest that it will prove equally correct when extended to similar phenomena in other languages.

NOTES

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1. For further discussion of pairing questions, see Baker (1971) and Kuno and Robinson(1972).

2. Browne reports that questions (15) through (17) are preferable with the enclitics immediately following the first constituent.

(15)' Šta ti je i kada paklonio.

My informants rejected this word order, however, preferring the version presented in the text.

3. The application of Sluicing in reduced direct questions is discussed in greater detail in the preceding paper.

4. Chomsky's exact statement of the rule follows:

> If S_1 ahd S_2 are grammatical sentences, and S_1 differs from S_2 only in that X appears in S_1 where Y appears in S_2 (i.e., S_1=..X.. and S_2=..Y..), and X and Y are constituents of the same type in S_1 and S_2, respectively, then S_3 is a sentence, where S_3 is the result of replacing X by X+and+Y in S_1. (p.36)

5. The InCon questions seem slightly better than the corresponding declaratives. Perhaps the very fact that the conjoined constituents are both WH-words makes them more similar, and thus more easily conjoined.

6. Turkish has the basic word order SOV. In WH-questions, however, the least marked order finds the question word scrambled to immediate pre-verbal position.

7. Turkish does have simple reduced questions in which everything but the question word has been deleted.

(i) Hasan kabağı yedi. --Ne zaman?
John squash ate when
"John ate the squash. --When?"

These questions are produced not by Sluicing but by the ellipsis rule of Stripping. See the preceding paper for a justification of this claim.

8. Quiz questions have different syntactic properties in English, as well. WH-movement is obligatory in normal discourse, but not in quiz questions. The following example is appropriate as either a quiz questions or an echo question, though it is ungrammatical as a true request for information.

(ii) Hemingway wrote that book *when*?

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ON SUBJECT-TO-OBJECT RAISING IN ARABIC*

Joel L. Clinkenbeard

0. There is a construction in Arabic which closely resembles the output of subject-to-object raising (SOR) after verbs like *believe*, *think*, *consider*, and *find* in English. Following Postal (1974), verbs in this semantic field will be called B-verbs. Some examples of Arabic B-verb constructions are given below. Notice that the first sentence of each pair is followed by a full sentential complement introduced by the complementizer *?anna*[1]. The second sentence of each pair, which is semantically equivalent to the first, contains no complementizer. The NP which is the subject of the embedded sentence in the first member of each pair superficially appears to be the direct object of the matrix verb in the second member.

(1) a. ḍanan-tu[2] ?anna ḥasan-a-n majnuun-u-n
think-1P that Hasan-A-U crazy-N-U
'I thought that Hasan was crazy.'
ḍanan-tu ḥasan-a-n majnuun-a-n
b. wajad-tu ?anna ṣadiiq-a-ka qad xaraj-a
find-1P that friend-A-your *asp* leave-3P
'I found that your friend had left.'

wajad-tu ṣadiiq-a-ka qad xaraj-a

The number of verbs which can occur in such constructions is more limited than in English. Wright and Howell each include: *ḍanna* 'think, believe', *wajada* 'find'

9adda 'consider', hasiba 'suppose, think', daraa 'realise', 9alima 'know', xaala 'imagine', ra?aa 'see, think, decide', za9ama 'claim', ta9allim 'Know! (imperative)', hab 'Suppose! (imp.)'.[3]

Even with the verbs that allow it, the SOR-like construction is rare when the complement sentence contains a verb. However, when the complement sentence is an equational, as in (1a), the SOR construction is preferred. An equational sentence is a sentence of the form NP followed by NP, Adjective, PP, or Adverb; the present tense copula is not expressed in Arabic.

It is impossible to raise the same NP more than once in Arabic. Although a raised NP can be passivized, it cannot subsequently be raised. Thus, the sentences in (2) can be derived from the sentences in (1), but those in (3) cannot be derived.

(2) a. dunn-a hasan-u-n majnuun-a-n
think-3P Hasan-N-U crazy-A-U
(pass)
'Hasan was thought (to be) crazy.'

b. wujid-a sadiiq-u-ka qad xaraj-a
find-3P friend-N-your asp leave-3P
(pass.)
'Your friend was found to have left.'

(3)[4] a. * za9am-tu hasan-a-n qad dunn-a majnuun-a-n
claim-1P Hasan-A-U asp think-3P crazy-A-U
(pass.)
'I claimed Hasan to have been thought crazy.'

b. * danan-tu sadiiq-a-ka qad wujid-a qad xaraj-a
think-1P friend-A-your asp find-3P asp leave
(pass.) -3P
'I thought your friend to have been found to have left.'

The problem we will consider in this paper is how to block sentences such as those in (3). Up to this point, we have been assuming the existence of SOR in Arabic on the basis of the resemblance between certain Arabic constructions and English SOR constructions. The Arabic constructions also show differences from the English constructions, notably in the lack of an infinitive verb form.[5] Therefore, the next section will present more substantial arguments for an Arabic SOR transformation. Section 2 will show that the double-raising examples in (3) cannot be blocked by rule ordering. Section 3 will suggest that the sentences in (3) are to be blocked by a global constraint on SOR in Arabic. Some evidence will be presented that this constraint might be the result of some more general principles governing Arabic transformations.

1. Arguments for SOR

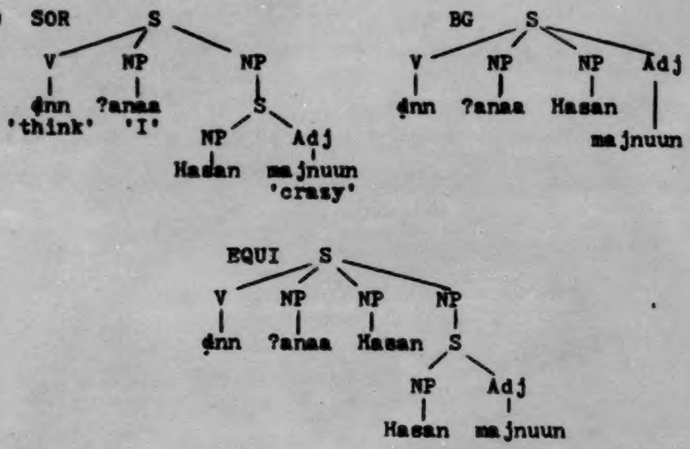
Most of the arguments in this section correspond to arguments for English SOR given in Postal (1974). However, as is to be expected, the arguments cannot be translated directly.

There are two alternative hypotheses to an SOR analysis for sentences like (1). The first is that there is already an object present in the matrix sentence in the deep structure. The second is that there is actually no matrix object in the surface structure. In other words the two alternative hypotheses claim that we have incorrectly analyzed the deep structure and surface structure, respectively, in claiming the existence of SOR in (1).

1.1 Arguments against an underlying matrix object

We will consider three possible underlying structures[6] for sentence (1a).

(4)


SOR
S
V
NP
NP
ẓnn
'think'
?anaa
'I'
S
NP
Adj
Hasan
majnuun
'crazy'
BG
S
V
NP
NP
Adj
ẓnn
?anaa
Hasan
majnuun
EQUI
S
V
NP
NP
NP
ẓnn
?anaa
Hasan
S
NP
Adj
Hasan
majnuun

These three structures correspond to a raising analysis (SOR), a base generation (BG) analysis, and a coreferential NP deletion (EQUI) analysis. Under the BG analysis, the base contains rules which produce the surface form of (1a) directly without any relevant transformation. Under the EQUI analysis, both a matrix object and a complement sentence are generated; a transformation deletes the subject of the complement if it is coreferential to the matrix subject[7].

The BG analysis is plausible only for sentences like (1a) where there is no verb in the complement. To derive sentences like (1b) in the base would require an infinite number of base rules. The reason for this is that the complement verb could itself be a B-verb; thus, it would be possible to get arbitrarily long surface strings of the form V--NP--NP--V--NP--V--NP..., e.g., *danantu hasanan za9ama ?ahmada xaala zaydan*... 'I thought Hasan to have claimed Ahmad to have imagined Zaid...'

The arguments against BG are all based on the fact that constituents which can stand alone as a grammatical sentence can also occur as the complements of a B-verb and vice-versa. This fact is captured by deriving B-verb complements from an underlying sentential complement. Under the BG analysis, there would have to be two separate statements in the grammar, one to describe the semantic and syntactic relations between the first and second complements of B-verbs and another to describe the relations between the subjects and predicates of independent sentences. Furthermore, the fact these statements were exactly the same would have to be regarded as coincidence. Some specific kinds of information which would have to be stated twice are:

Semantic interpretation/paraphrase relations

The structure B-verb--NP--NP--X is semantically equivalent to B-verb--NP--${}_{S}[$?anna--NP--X$]_{S}$.

(5) ḍanan-tu ḥasan-a-n majnuun-a-n
= ḍanan-tu ?anna ḥasan-a-n majnuun-a-n
'I thought that Hasan was crazy.'

Selectional restrictions

(6) *š-šajarat-u majnuun-at-u-n
the-tree-N crazy-f-N-U
'The tree is crazy.'

*ḍanan-tu š-šajarat-a majnuun-at-a-n
'I thought the tree crazy.'

Subcategory restrictions

Constituent strings which are not generated as independent sentences, such as Adj--NP, PP--NP, NP--NP--NP[8] do not occur after B-verbs.

(7) * fii l-bayt-i l-walad-u
in the-house-G the-boy-N
'In the house is the boy.'

*ḍanan-tu fii l-bayt-i l-walad-u
'I thought in the house (to be) the boy.'

Idiomatic use of PP's

Some prepositional phrases can be used only predicatively; e.g., *9alaa ḥaqq-i* 'in the right'. Others can be used only adverbially; e.g., *bi ḥaqq-i* 'by rights, justly.' Only the predicative PP's can occur as the second complement of a B-verb.

(8)
$$\text{ḥasan-u-n}\left\{\begin{array}{l}\text{9alaa ḥaqq-i}\\ \text{*bi ḥaqq-i}\end{array}\right\}$$
$$\text{ḍanan-tu ḥasan-a-n}\left\{\begin{array}{l}\text{9alaa ḥaqq-i}\\ \text{*bi ḥaqq-i}\end{array}\right\}$$
$$\text{'I thought Hasan}\left\{\begin{array}{l}\text{in the right.}\\ \text{by rights.}\end{array}\right\}\text{'}$$

Arguments against an underlying EQUI structure for B-verbs are formed by contrasting the syntactic behavior of B-verbs with that of verbs which can be shown independently to be EQUI verbs. Two EQUI verbs in Arabic are *sa?ala* 'ask' and *?amara* 'order'. These verbs can actually occur in two different constructions, as in (9).

(9) a. sa?al-tu ?an ya-xruj-a l-waziir-u
ask-1P that 3-leave-S the-minister-N
'I asked that the minister leave.'

b. sa?al-tu l-waziir-a ?an ya-xruj-a
'I asked the minister to leave.'

The semantic distinction between (9a) and (9b) (in both Arabic and English) points to an underlying S complement for (9a), but an underlying NP--S complement for (9b). The syntactic behavior of B-verbs constrasts in several respects with that of *sa?ala* in (9b).

Paraphrase relation

The semantic distinction in (9) is not exhibited in B-verb constructions. Thus, (10a) is semantically equivalent to (10b).

(10) a. ẓanan-tu ʔanna l-waziir-a qad xaraj-a
think-1P that the-minister-A asp leave-3P
'I thought that the minister had left.'

b. ẓanan-tu l-waziir-a qad xaraj-a

Approximate semantic equivalence of embedded passives

The agent is never expressed in an Arabic passive construction. Thus, there are no exactly equivalent active/passive sentence pairs. However, the approximate active equivalent of a passive sentence can be expressed by using the indefinite noun Šaxṣ-u-n 'a person, someone' as subject. There is an approximate semantic equivalence between a B-verb sentence with a passive complement and a B-verb sentence with an active complement whose subject is Šaxṣ-u-n. This approximate equivalence does not hold for sentences containing an EQUI-verb.

(11) a ≅ b

a. ẓanan-tu ḥasan-a-n qad fuḥiṣ-a
think-1P Hasan-A-U asp examine-3P
(pass.)
'I thought Hasan to have been examined.'

b. ẓanan-tu Šaxṣ-a-n faḥaṣ-a ḥasan-a-n
'I thought someone to have examined Hasan.'

(12) a ≠ b

a. saʔal-tu ḥasan-a-n ʔan yu-fḥaṣ-a
ask-1P Hasan-A-U that 3-examine-S
(pass.)
'I asked Hasan to be examined.'

b. saʔal-tu šaxṣ-a-n ʔan ya-fḥaṣ-a ḥasan-a-n
'I asked someone to examine Hasan.'

Idiomatic subjects

The B-verbs, but not EQUI verbs can take complements with idiomatic subjects.

(13) a. ẓanan-tu s-samaaʔ-a maṭar-at
think-1P the-sky-A rain-3f
'I thought it (the sky) to have rained.'

b. * saʔal-tu s-samaaʔ-a ʔan ta-mṭar-a
'I asked the sky to rain.'

1.2 Arguments for a surface matrix object

The only surface difference between the two sentences in (1b) is that one contains the complementizer ʔanna and the other does not. It is conceivable that we could accept the arguments for the SOR type underlying structure of the preceding section, but still claim that the subject of the embedded clause is not raised to object position in the matrix clause. In such an analysis, we would have a simple complementizer deletion transformation (CD), similar to that deletion in English sentences like I think he came.

Arguments will be presented in this section to show that SOR is correct, rather than CD.

1.2.1 Passive

The first complement of a B-verb can become its subject by passivization.

(14) a. ðunn-a ḥasan-u-n majnuun-a-n
think-3P Hasan-N-U crazy-A-U
(pass.)
'Hasan was thought crazy.'

b. wujid-a ṣadiiq-u-ka qad xaraj-a
find-3P friend-N-your *asp* leave-3P
(pass.)
'Your friend was found to have left.'

In this respect, the first complement begaves like a direct object. In other words, it behaves as if it had been raised from embedded subject position to matrix object position. If passive is clause bounded, the facts in (14) provide an argument for SOR; unfortunately, B-verb constructions are the only constructions where the clause-boundedness of passive could be tested.[9]

Since the passive argument is an important argument for SOR, it might be well to consider whether there are any alternative derivations for sentences wuch as those in (14). One possivle alternative would be to passivize the entire B-verb sentential complement and then delete the complementizer. Sentence (14a) would then be derived as follows:

ḍanna PRO $_S$[?anna Ḥasan majnuun]
==> (passive) ḍunna $_S$[?anna Ḥasan majnuun]
==> (CD) ḍunna $_S$[Ḥasan majnuun]

The objection to such an analysis is that the embedded NP subject gets nominative case marking[10]: *ḍunna ḥasan-*$\overset{u}{*a}$*-n majnuun-a-n*. The complementizer *?anna* governs the accusative case. Hence, in this derivation, case-marking would have to be assigned after *?anna* is deleted. In the non-passive case, the embedded subject gets accusative case marking: *ḍanna ḥasan-*$\overset{*u}{a}$ *-n majnuun-a-n* 'He thought Hasan crazy.' In the derivation of this sentence, case-marking would have to take place before *?anna* is deleted. Otherwise, the embedded subject would be expected to be in the nominative case. The SOR analysis automatically explains the case-marking. After SOR, the underlying embedded subject is governed by the matrix verb. If it remains in object position, it gets marked accusative. If it becomes a subject by passivization, it gets marked nominative.

A second argument against the above analysis is that the passive matrix verb can agree with the subject of the embedded clause instead of remaining impersonal. Thus, we get: *wujid-tu majnuun-an* 'I was found crazy.' and *ḍunn-at l-bint-u majnuun-at-a-n* 'The girl was thought crazy.' In these sentences, the verbs are marked for first person and feminine gender respectively.

Another possible way to derive the sentences in (14) would be first to passivise the sentential complement and then to raise the embedded subject to subject of the passivised matrix verb by subject-to-subject raising (SSR). Arabic does have SSR as well as SOR, as shown in (15).

(15) a. ḍahar-a ?anna ḥasan-a-n majnuun-u-n
seem-3P that Ḥasan-A-U crazy-N-U
'It seemed that Hasan was crazy.'

b. ḍahar-a ḥasan-u-n ?anna-hu majnuun-u-n
that-he
'Hasan seemed that he was crazy.'

c. ḍahar-a ḥasan-u-n majnuun-a-n
'Hasan seemed crazy.'

However, I know of no way to distinguish in the present case between deriving (14) by SOR-passive or by passive-SSR.[11]

1.2.2 Reflexive

Arabic reflexive is clause-bounded and obligatory for direct objects[12]. According to my informants, reflexive is also obligatory after B-verbs. However, according to grammar books, it is not necessary to have a reflexive pronoun after B-verbs. Wright (1967, ii:271) says, 'But a suffix attached to the verb itself cannot have reflexive meaning...except in the case of the verba cordis [=B-verbs] when the pronominal suffix is the first object and the second object is either a noun or a whole sentence.'

Note that Wright does not say that the reflexive pronoun cannot occur after B-verbs, only that it does not have to. He gives no examples to show whether a sentence such as (16b) is grammatical. In the following examples, the first judgment represents that of my informants; the second, that of Wright if it can be determined.

(16) a. */✓ ḍanan-tu-nii mariiḍ-a-n
think-1P-me sick-Á-U

b. ✓/- ḍanan-tu nafs-ii mariiḍ-a-n
self-my
'I thought myself sick.'

The judgments of my informants support an SOR analysis. The first complement of the B-verb is obligatorily reflexivized if coreferent with the subject, exactly as a direct object would be. The grammar book judgments are indeterminate[13].

1.2.3 Inclusion constraint[14]

Like English, Arabic has a constraint against overlapping coreference of subject and object. The Arabic constraint differs slightly from English in that reflexives are somewhat better than bare pronouns. This inclusion constraint is illustrated in (17).

(18) a. ra?ay-tu { nafs-ii / ?* ?anfus-a-naa / * -naa } fii l-mir?aat-i
see-1P { self-my / selves-our / us } in the-mirror-G
'I saw { myself / ourselves / us } in the mirror.'

b. ra?ay-naa { ?anfus-a-naa / ?*nafs-ii / *-nii } fii l-mir?aat-i
'We saw { ourselves / myself / me } in the mirror.'

Exactly the same range of grammaticality applies to the first complements of B-verbs.

(19) a. ḍanan-tu ?anna-naa fii bayruut-i
think-1P that-we in Beirut-G
'I thought that we were in Beirut.'

b. ḍanan-tu { ?* ?anfus-a-naa / * -naa } fii bayruut-i

Sentence (19a) shows that the inclusion constraint does not apply across sentence boundaries. It also shows that the ungrammaticality of (19b) is not due to semantic anomaly. The fact that the inclusion constraint applies in (19b) implies that the overlapping coreferent pronouns have been raised into the same clause with the matrix verb.

1.2.4 Case marking and cliticization

As pointed out in footnote 10, subjects in Arabic are in the nominative case, while objects of verbs are in the accusative. Similarly subject pronouns are independent pronouns while object pronouns cliticize to the verb. Subject pronouns are generally deleted in a sentence with a tensed verb. Their most common usage is as the subject of an equational sentence.

Nouns and pronouns are treated like objects after B-verbs, in that nouns are marked accusative and pronouns cliticize.

(20) a. đann-a l-waziir-a majnuun-a-n
think-3P the-minister-A crazy-A-U
'He thought the minister crazy.'

b. đann-a-nii majnuun-a-n
'He thought me crazy.'

These facts do not constitute a very strong argument for SOR in that nouns and pronouns are also treated like objects after the complementizer ?anna. Thus, if case-marking and cliticization were to take place before CD, then (20) could be explained without SOR.

Another fact about case-marking which is difficult to explain under either a CD or SOR analysis is why the second complement of a B-verb is accusative. This fact is illustrated in (21).

(21) a. ḥasan-u-n mariiḍ-u-n
Ḥasan-N-U sick-Ń-U
'Hasan is sick.'

b. ḍanan-tu ?anna ḥasan-a-n mariid-u-n
Hasan-Á-U sick-Ń-U
'I thought that Hasan was sick.'

c. ḍanan-tu ḥasan-a-n mariid-a-n
sick-Á-U

The accusative case marking on *mariiḍ* in (21c) would follow naturally if it were raised into the matrix sentence. Other double object constructions such as causatives and the output of dative movement have both objects in the accusative[15]. It appears to be a general rule of Arabic that all objects of a verb are marked accusative.

The CD analysis requires an *ad hoc* statement to account for the accusative case marking in (21c). However, if we accept Ross' (1966) notion of tree-pruning, the result follows directly from an SOR analysis. Ross' claim is that a non-branching S-node will be pruned. Notice that after the subject of an equational sentence is raised, the predicate is dominated by a non-branching S-node. Hence, the S-node gets pruned and the predicate becomes a constituent of the matrix sentence. If the predicate is an NP or Adj, it gets accusative case marking. This process is illustrated below in the derivation of (21c).

ḍanantu ${}_S[$?anna Ḥasan mariiḍ$]_S$
==> (SOR) ḍanantu ḥasan ${}_S[$mariiḍ$]_S$

==> (S-Pruning) ḍanantu ḥasan mariiḍ
==> (Case) ḍanantu ḥasan-a-n mariiḍ-a-n

1.2.5 Adverb placement

Arabic has a strong constraint against sentence internal sentences. Thus a sentential subject will always occur in sentence final position, even though this violates the normal VSO word order; e.g. faaja?a ḥasan-a-n ?anna zayd-a-n maata 'It surprised Hasan that Zaid died.' Likewise adverbs cannot follow a sentential object.

(22) a. * ḍanan-tu ?anna ḥasan-a-n mariiḍ-u-n
l-baariḥat-a
think-1P that Hasan-A-U sick-N-U
the-yesterday-A

b. ḍanan-tu l-baariḥat-a ?anna ḥasan-a-n
mariiḍ-u-n
'I thought yesterday that Hasan was sick.'

c. ḍanan-tu ?anna ḥasan-a-n kaan-a mariiḍ-a-n
l-baariḥat-a be-3P

In (22c) the adverb must modify the verb inside the complement. Now consider sentence (23), which is synonymous with (22b), not (22c).

(23) ḍanan-tu ḥasan-a-n mariiḍ-a-n l-baariḥat-a

If ḥasan-a-n mariiḍ-a-n were still a sentence, as would be predicted by CD, then (23) should be ungrammatical.

However, if ḥasan-a-n has been raised by SOR, and the complement S-node has been pruned as discussed in the preceding section, then the grammaticality of (23) is explained.

2. Ordering of SOR

The sentences in (3) show that certain sequences of transformations which can occur in English do not occur in Arabic; in particular, the sequence SOR--Passive--SOR does not occur. It might be thought that this could be explained by positing a difference English rule ordering and Arabic rule ordering. In this section, we will examine several possible theories of rule ordering and show that each is inadequate by itself to account for the Arabic facts.

2.1 Linear order

First, let us suppose that Arabic transformations are extrinsically ordered in a linear list. Under such a theory, the sentences in (3) would be ruled out by ordering SOR before passive. Additional evidence immediately shows that extrinsic ordering is inadequate. Both passive and reflexive can either precede or follow SOR, and passive can do both in the same derivation[16].

(24) a. ḍanan-tu ḥasan-a-n qad qutil-a
think-1P Ḥasan-A-U asp kill-3P
(pass.)
'I thought Hasan to have been killed.'

b. ḍunn-a ḥasan-u-n qad qutil-a
think-3P kill-3P
(pass.) (pass.)
'Hasan was thought to have been killed.'

c. ḍanan-tu ḥasan-a-n qad qatal-a nafs-a-hu
kill-3P self-A-his
'I thought Hasan to have killed himself.'

d. ḍanan-tu nafs-ii qad qatal-tu ḥasan-a-n
self-my
'I thought myself to have killed Hasan.'

2.2 Free order and natural order

Now let us consider a theory of rule ordering in which transformations can apply in any order at all. This theory would allow passive and reflexive to apply either before or after SOR, which is consistent with the facts of the preceding section. However, the free order theory does not block the sequence SOR--Passive--SOR which was shown to be ungrammatical in (3), unless an additional restriction is imposed that rules can only apply once (or rather that all applications of a rule occur in one block). But such a restriction would also block the order Passive--SOR--Passive, which is grammatical (cf. 24b). Thus, the only way a free order theory could account for the facts would be to divide all transformations into two classes, those that are reapplicable, such as passive, and those that are not reapplicable, such as SOR. This amounts to nothing more than imposing a global constraint on rules like SOR to the effect that they cannot apply to structures where they have already applied.

The same problem comes up if we assume that rules are ordered by 'natural' principles such as maximising 'feeding' order and minimising 'bleeding' order. Since SOR and passive are mutually feeding, it would be expected that they could apply in any order, as in fact they can. However, like the free order theory, the natural order theory has no inherent properties which would prevent SOR from reapplying to a passivized raised NP. The natural order theory would also need some device equivalent to a global constraint in order to prevent sentences such as (3).

2.3 Cyclic order

We will now investigate whether the facts in (3) and (24) can be accounted for by cyclic rule ordering. The particular version of the cycle being assumed here is one in which there are three types of rules: precyclic, cyclic, and postcyclic. Within each group the rules are not extrinsically ordered. The cyclic rules apply to the lowest S first, then to the next higher S, working up the tree until they reach the root.

First, let us suppose that passive, reflexive, and SOR are all cyclic, as they are in English. This ordering does not block the sentences in (3). There is nothing in the ordering itself to prevent SOR and passive from applying on one cycle, and SOR again on the next cycle.

Second, suppose that passive and SOR are both precyclic or both postcyclic. Regardless of how the precyclic/postcyclic rules are ordered among themselves, we run into the same problems that occurred with non-cyclic rule orderings in the preceding sections. SOR can be sandwiched between two passives, but passive cannot occur between two applications of SOR. Thus, some additional device would be needed to allow passive, but not SOR to reapply.

Next, consider the possibility that SOR is cyclic, but passive and reflexive are not. If they are precyclic, then (24b,d) should be ungrammatical since they would be examples of precyclic rules following cyclic rules. Likewise, if they are postcyclic, then (24a,b,c) should all be ungrammatical since they would be examples of postcyclic rules preceding cyclic rules. Since passive and reflexive could be neither precyclic nor postcyclic under this hypothesis, we must rule it out.

Finally, let us take passive and reflexive to be cyclic, but not SOR. Again, we encounter the same problems. SOR could not be precyclic because there are examples like (24a,b,c) where passive and reflexive precede SOR; nor could it be postcyclic since there are examples like (24b,d) where passive and reflexive follow SOR.

The result of this section is that none of the possible orderings of passive, reflexive, and SOR within a cyclic rule theory is adequate to account for all the facts.

3. A global constraint on SOR

In the preceding section, it was shown that the only way to account for (3) with rule ordering was to incorporate the equivalent of a global constraint into the ordering principles. In other words, we would have had to formulate ordering principles based on an arbitrary subclassification of rules designed to account for the properties of just one rule. In this section, we will assume that the fact that SOR cannot reapply is, in fact, accounted for by a global constraint on SOR. We will attempt to formulate this constraint and investigate its properties.

3.1 Statement of the constraint

Based on the facts examined so far, SOR may be informally constrained as follows: SOR cannot apply to an NP which has been raised by a previous application of SOR. Conceivably, this constraint could be stated strictly in terms of structure, since the output of SOR is clear. Such a rule might be:

B-verb--(NP)--$[_S$--?anna--NP--X ==>
B-verb--(NP)--NP--$[_S$--X
condition: $X \neq V_{pass}$--$[_S$--Y

The condition on this rule is actually not adequate to rule out sentences like (3a) where the first application of SOR is from an equational sentence. In these sentences, the S-node would be pruned (cf. 1.2.4) so that the condition on the above rule would not be satisfied and a second application of SOR would not be blocked as it should be. Even if the rule could be fixed up to account for these cases, nothing much is gained. Such an unwieldy condition would only be an awkward way of using the transformational history of a structure to constrain a rule while pretending not to.

3.2 Generalization of the constraint

A closer examination of the facts in (3) plus an examination of some other syntactic constructions reveals that it is not necessary to state a constraint specifically on SOR. Instead, we find that the constraint follows from some general principles in Arabic.

(25) i. The grammaticality of a sentence is reduced if the surface output has a constituent between an underlying subject and its predicate.

ii. The grammaticality of a sentence is reduced if its surface output has a sentence boundary between an underlying subject and its predicate.

iii. Neither of the above statements holds if the place of the subject is held by a resumptive pronoun.

I do not know whether these statements are to be regarded as output (surface structure) constraints, performance constraints, or conditions on the application of transformations.

These three principles account for a number of facts. First, remember that SOR from an equational sentence is perfectly grammatical, but SOR from a sentence with a tensed verb is regarded as grammatical, but rare and slightly strange.

(26) a. ḍanan-tu ḥasan-a-n { l-malik-a
b. majnuun-a-n
c. huna
d. fii l-bayt-i }

'I thought Hasan (to be) { the king
crazy
here
in the house }.'

e. ✓? ḍanan-tu ḥasan-a-n qad xaraj-a
'I thought Hasan to have left.'

f. ✓? ḍanan-tu ḥasan-a-n qad qatal-a zayd-a-n
'I thought Hasan to have killed Zaid.'

In (26a,b,c,d), after *Hasan* is raised, the S-node over the predicate (NP, Adj, Adv, or PP) is pruned. Thus, there is no S-boundary between the subject *Hasan* and its underlying predicate. In (26e,f) on the other hand, no S-pruning takes place after *Hasan* is raised. In the output string, there is a sentence boundary between the NP *Hasan* and its predicate. By principle (25ii), the grammaticality of such sentences is reduced. Notice that the grammaticality is not reduced enough to make the sentence ungrammatical.

Now let us return to the sentences in (3). Although both are ungrammatical, in fact, (3a) is somewhat better than (3b). The transformational history of (3a) is given below.

za9am-tu $[_{S_1}$?anna ḍanna PRO $[_{S_2}$?anna
ḥasan majnuun $_{S_2}]$ $_{S_1}]$
=> (SOR) za9am-tu $[_{S_1}$?anna ḍanna PRO ḥasan majnuun$_{S_1}]$
=> (passive)za9am-tu$[_S$?anna ḍunna ḥasan majnuun $_S]$
=> (fronting)za9am-tu $[_S$?anna ḥasan ḍunna majnuun $_S]$
=> (SOR) za9am-tu ḥasan $[_S$ ḍunna majnuun $_S]$
=> (case) za9am-tu ḥasan-a-n $[_S$ ḍunna majnuun-a-n $_S]$
= (*3a)

The complementizer *?anna* must be followed by a noun-initial sentence. Normal Arabic word order is VSO. Thus the stage of the derivation labelled *fronting* is an obligatory transformation triggered by the presence of *?anna*, which permutes

VSO order to SVO. At this point the verb *ḍunna* is interposed between *Hasan* and its underlying predicate *majnuun*. If the derivation were stopped here without raising *Hasan* again, the resulting sentence would already be less than perfectly grammatical.

(27) ? za9am-tu ?anna ḥasan-a-n ḍunna majnuun-a-n
'I claimed that Hasan was thought crazy.'

This result would follow from (25i). Like (25ii), (25i) is not sufficient by itself to make the sentence ungrammatical. Notice that if SOR does apply to give (3a), there are both a sentence boundary and a constituent between *Hasan* and *majnuun*. Both (25i) and (25ii) apply and this is enough to make the sentence ungrammatical.

The derivation of (3b) is:

ḍanantu $[_{S_1}$?anna qad wajada PRO $[_{S_2}$?anna
qad xaraja ṣadiiq ?anta $_{S_2}]$ $_{S_1}]$

⟹ (fronting) ḍanantu $[_{S_1}$?anna qad wajada PRO $[_{S_2}$?anna
ṣadiiq ?anta qad xaraja $_{S_2}]$ $_{S_1}]$

⟹ (SOR) ḍanantu $[_{S_1}$?anna qad wajada PRO ṣadiiq ?anta
$[_{S_2}$ qad xaraja $_{S_2}]$ $_{S_1}]$

⟹ (passive) ḍanantu $[_{S_1}$?anna qad wujida ṣadiiq ?anta
$[_{S_2}$ qad xaraja $_{S_2}]$ $_{S_1}]$

⇒ (fronting) ḍanantu $[_{S_1}$?anna ṣadiiq ?anta qad wujida
$[_{S_2}$ qad xaraja $]_{S_2}$ $]_{S_1}$

⇒ (SOR) ḍanantu ṣadiiq ?anta $[_{S_1}$ qad wujida
$[_{S_2}$ qad xaraja $]_{S_2}$ $]_{S_1}$

⇒ (Case) ḍanantu ṣadiiqaka qad wujida qad xaraja
'I thought your friend to have been found to have left.'

= (*3b)

In this derivation by the time the second fronting operation takes place, there is already a verb *wujida* and a sentence boundary between the subject *ṣadiiq ?anta* and its underlying predicate *qad xaraja*. Thus, both (25i) and (25ii) are applicable. If the derivation is stopped at this point the sentence is already ungrammatical.

(28) * ḍanan-tu ?anna ṣadiiq-a-ka qad wujida qad xaraja
'I thought that your friend was found to have left.'

If SOR then applies, (25ii) applies again and the sentence becomes even worse.

Closer examination of (3a) and (3b) has shown that it is not just SOR which is constrained from applying to a raised NP, but also fronting after ?anna. Therefore, let us examine some other transformations which move NPs to see whether the same results hold. Three examples of movement transformations are question-movement, topicalization, and relativization. These transformations all leave resumptive pronouns except when extracting from subject position. Question movement can also optionally not leave a resumptive pronoun when extracting from object position. These properties are illustrated in (29).

(29) a. man xaraja 'Who left?'
b. ḥasan-u-n xaraja 'Hasan, he left.'
c. l-walad-u llaaðii xaraja... 'The boy who left...'
d. man qatala ḥasan-u-n 'Who did Hasan kill?'
e. man qatala-hu ḥasan-u-n same as *d*
f. zaydun, qatala-hu ḥasanun 'Zaid, Hasan killed him.'
g. l-walad-u llaaðii qatala-hu ḥasan-u-n... 'The boy whom Hasan killed...'

The results of applying these transformations in structures like *ḍunna ḥasanun majnuunan* 'Hasan was thought crazy.' and *ḍunna ḥasanun qad xaraja* 'Hasan was thought to have left' are given in (30).

(30) a. ? man ḍunna majnuunan
'Who was thought crazy?'

b. ? Ḥasanun ḍunna majnuunan
'Hasan, he was thought crazy.'

c. ? hadaa huwa lwaladu llaaðii ḍunna majnuunan
'This is the boy who was thought crazy.'

e. ?? man ḍunna qad xaraja
'Who was thought to have left?'

f. ?? ḥasanun ḍunna qad xaraja
'Hasan, he was thought to have left.'

g. ?? hadaa huwa lwaladu llaaḍii ḍunna qad xaraja
'This is the boy who was thought to have left.'

In (30a,b,c), only (25i) applies since the verb is interposed between subject and predicate. These sentences are acceptable, but odd. In (30e,f,g), both (25i) and (25ii) apply. These sentences are worse than (30a,b,c) (although for some reason, they are better than (3a) even though the violations appear to be the same).

Question extraction from object position is illustrated in (31).

(31) a. ? man ḍananta majnuunan
'Who did you think crazy?'

b. man ḍanantahu majnuunan
'Who did you think him crazy?'

c. * man ḍananta qad xaraja
'Who did you think to have left?'

d. man ḍanantahu qad xaraja
'Who did you think him to have left?'

The grammaticality of (31a) is reduced in accordance with (25i). The grammaticality of (31c) is reduced in accordance with both (25i) and (25ii). The grammaticality of (31b,d) is not reduced because there is a resumptive pronoun to mark the place of the underlying subject. Such sentences as these are the motivation for (25iii).

Finally, let us examine one other construction where the principles in (25) seem to operate, namely subject-to-subject raising (SSR).[17] Sentences (15) provide some examples of SSR from equational sentences; sentences (32) provide examples of SSR from sentences with tensed verbs.

(32) a. ḍahar-a ?anna ḥasan-a-n qad xaraj-a
appear-3P that Hasan-A-U asp leave-3P
'It appeared that Hasan had left.'

b. ? ḍahar-a hasan-u-n ?anna-hu qad xaraj-a
that-he
'Hasan appeared that he had left.'

c. ?? ḍahar-a ḥasan-u-n qad xaraj-a
'Hasan appeared to have left.'

As (32b,c) show, SSR is a rather weak transformation to start with. When it interacts with SOR, the principles in (25) come into play. The results are ungrammatical, as shown in (33) and (34).

(33) SSR applying after SOR

a. * ḍahar-a ḥasan-u-n ?anna-hu ḍunn-a majnuun-a-n
appear-3P think-3P (pass.)
'Hasan appears to have been thought crazy.'

b. *ḍahar-a ḥasan-u-n ?anna-hu ḍunn-a qad xaraj-a
'Hasan appeared to have been thought to have left.'

(34) SOR applying after SSR

a. * ḍanan-tu ḥasan-a-n ḍahar-a ?anna-hu majnuun-u-n
'I thought Hasan to have appeared to be crazy.'

b. * ḍanan-tu ḥasan-a-n ḍahar-a ?anna-hu qad ẋaraj-a
'I thought Hasan to have appeared to have left.'

In (33a), principle (25i) is in operation. The NP Hasan is separated from its underlying predicate majnuun by the verb ḍunna. In (34b), both (25i) and (25ii) apply since there is a sentence boundary before qad xaraja. Note that the sentence boundary before ?anna is not relevant to the grammaticality, in accordance with (25iii), since there is a resumptive pronoun inside the sentence boundary to mark the original position of Hasan. Sentences (34a,b) are ungrammatical because of (25ii) since there is a sentence boundary between Hasan and ḍahara. It was stated earlier that neither (25i) nor (25ii) was sufficient by itself to make a sentence ungrammatical. However, in the case of a weak transformation like SSR whose output is not completely acceptable anyway, they can reduce the grammaticality to an unacceptable level.

3.3 Unanswered questions

I think the most important unanswered question in this paper is that of how to incorporate principles like those in (25) into the grammar. It seems likely that they are in some way related to processing difficulty and may themselves be predictable from the general typological characteristics of the language. Arabic has subject -predicate agreement and does not have any infinitive form for which this agreement can be suspended. In processing a sentence, subjects must be matched with predicates. If there is material between a subject and its underlying predicate, particularly if it is another predicate with which the subject could agree, then processing difficulty is increased. This results in a principle like (25i). If the subject does not end up in the same clause as its underlying predicate, it becomes more difficult to match them. This results in a principle like (25ii). Finally, Arabic has resumptive pronouns. These make it easier to match up the correct subjects and predicates since the matching process can restart whenever a resumptive pronoun is encountered. Thus, a principle like (25iii) overrides (25i) and (25ii).

FOOTNOTES

* In this paper, the term Arabic will be used to refer to Modern Standard (Literary) Arabic. I would like to thank Dr. Wilson Bishai and Mrs. Beck of the Harvard Arabic Department for serving as informants.

1. Arabic has three complementizers. ?anna occurs after B-verbs. It must be followed by a nominal (noun-initial) sentence. The noun which follows it is in the accusative case. ?inna occurs after the single verb qaala 'say' and in utterance initial position with the meaning 'indeed, verily'. Like ?anna, it governs the accusative and must be followed by a nominal sentence. ?an occurs after verbs of request and desire, roughly the same semantic field as Postal's (1974) W-verbs. It must be followed by a verbal (verb-initial) sentence with the verb in the subjunctive.

2. Abbreviations used in the glosses are: N--nominative, A--accusative, G--genitive, U--unbounded (not governed by definite article, pronoun, or other noun), P--perfect, I--imperfect indicative, S--imperfect subjunctive, f--feminine, p--plural. Verbs will be assumed to be masculine singular unless otherwise specified. Thus, 3P means third person masculine singular perfect.

3. These are subject to dialect variation. My informant rejected all examples with 9alima 'know'. Hasan (1964) states that the construction is limited to the same verbs mentioned by Howell and Wright. However, his examples include one with the verb ?i9taqada 'believe'.

It might be noted here that Arabic also has SOR after verbs like ?araada 'want', ?amala 'hope' (W-verbs). W-verb SOR has quite different properties from B-verb SOR. Normal complements of W-verbs are ?an clauses in the subjunctive. After raising, the subject of the ?an clause appears before the ?an.

(i) a. ?arad-tu ?an ya-xruj-a ḥasan-u-n
want-1P that 3-leave-S Hasan-N-U
'I wanted that Hasan leave.'

b. ?arad-tu hasan-a-n ?an ya-xruj-a
Hasan-A-U
'I wanted Hasan to leave.'

The existence of W-verb SOR is more apparent from the surface string than that of B-verb SOR. However for several reasons, W-verb SOR is not as interesting. (1) W-verbs cannot be passivized except with a sentential complement. Thus, it is impossible to test a raised W-verb object for further raising. (2) The subject of the complement of a W-verb cannot be raised if it is identical to the subject of the W-verb. It must be deleted (although it is not clear whether the deletion takes place by EQUI-NP-deletion or by pronominalization and subject pronoun drop). Thus, it is impossible to test for reflexivization after W-verb SOR. (3) It is difficult to tell whether an extraction transformation applies before or after W-verb SOR. Note that (ia) and (ib) above are identical if *Hasan* is extracted.

4. The sentences in (3) are not ungrammatical because of semantic anomaly. Their source sentences before raising are grammatical.

(i) a. za9am-tu ?anna-hu ẓunn-a ?anna ḥasan-a-n majnuun-u-n
'I claimed that it was thought that Hasan was crazy.'

b. ẓanan-tu ?anna-hu qad wujid-a ?anna ṣadiiq-a-ka qad xaraja
'I thought that it was found that your friend had left.'

5. Throughout this paper the verbal noun or *masdar* is ignored. This form is sometimes called an infinitive, but it exhibits many of the idiosyncratic properties of English nominalizations, such as unpredictable phonological shape (at least for the simple triliteral verb), unpredictable semantic relation ot the verb, ambiguous syntactic construction (e.g., it can govern an object either in the accusative like a verb or in the genitive like a noun). A full discussion of the *masdar* would involve us in an Arabic version of the lexicalist controversy.

6. As is customary, details which do not seem to be relevant to the question under discussion are omitted from phrase markers.

7. It is immaterial to these arguments whether this deletion is the result of coreferential NP deletion or of pronominalization and subject pronoun drop.

8. Such strings can occur under certain discourse conditions. For example, NP--NP--NPcan be derived by topicalization as in *zaydun, lmaliku ?axuuhu* 'Zaid, the king is his brother.' Also, the string PP--NP is normal if the NP is indefinite, *fii lbayti waladun* 'In the house is a boy.'

9. Note that even for those who claim that passive is not clause bounded, example (14b) violates the tensed-S constraint, since the Arabic complement contains an inflected verb, rather than an infinitive.

10. The three Arabic cases are nominative, genitive, and accusative. The nominative is used for subjects and topics. The genitive is used for nouns governed by other nouns or by prepositions. The accusative is used for nouns governed byverbs or by various particles, including negatives and complementizers.

11. Notice that even if (1) is to be accounted for by CD and (14) by passive--SSR, there is still a problem in explaining how to block (3). It does not matter whether an NP gets raised into the matrix clause by SOR or SSR, it still must be prevented from being raised again. I believe that the total accumulation of evidence will support SOR in (1) and therefore probably for (14) as well.

12. The data below support the claim that reflexive is clause bounded and obligatory.

(i) đann-a ?anna $\left\{\begin{matrix}\text{-hu}\\ \text{*nafs-a-hu}\end{matrix}\right\}$ mariiḍ-a-n.
'He thought that he was sick.'

(ii) qatal-a $\left\{\begin{matrix}\text{-hu}\\ \text{nafs-a-hu}\end{matrix}\right\}$
'He killed $\begin{matrix}\text{him (*himself)}\\ \text{himself (*him)}\end{matrix}$.'

13. The grammaticality of (16a) tends to support the CD analysis, but the unknown status of (16b) means that SOR cannot be ruled out. If (16b) is grammatical, then it is possible that both CD and SOR exist and apply respectively in (16a) and (16b). Even if (16b) is ungrammatical, we still cannot rule out SOR without further investigation. If reflexive were ordered before SOR, then we would expect (16a) to be good, but not (16b). Such an order might occur, for instance if reflexives were inserted precyclically.

14. All examples in this section are based on my informants since grammar books generally do not discuss such sentences. It should be kept in mind that my informants have obligatory reflexivisation after B-verbs.

15. Examples of double object constructions are:

(i) 9allam-tu ḥasan-a-n falsafat-a-n
know-1P Hasan-A-U philosophy-A-U
(caus.)
'I taught Hasan philosophy.'

(ii) ?a9ṭay-tu ḥasan-a-n kitaab-a-n
give-1P Hasan-A-U book-A-U
'I gave Hasan a book.'

16. Sentences where reflexive both precedes and follows SOR in the same sentence are judged ungrammatical.

(i) * ḍanan-tu nafs-ii qad jaraḥ-tu nafs-ii
think-1P self-my *asp* wound-1P self-my
'I thought myself to have wounded myself.'

17. Arabic SSR is very limited. I know of only two verbs *ḍahara* 'appear' and *badaa* 'appear' which definitely allow it, although *?amkana* 'to be possible, able' is another possible candidate. The arguments for SSR are standard: selectional restrictions, idiomatic readings, etc. can apply equally as well between subject and predicate whether the subject remains in the same clause as the predicate or is raised to become subject of an SSR verb. It should be noted that my informant said that the sentences in (32) were not exactly synonymous, but the difference seems to be one of focus rather than of truth equivalence.

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On the Ordering of some Inversion Rules with Contraction

Ava-Robin Cohen

0. Introduction: In this squib I shall point out that there is fairly clear cut evidence that some transformational inversion rules must be extrinsically ordered before the contraction rule in English while other transformational inversion rules must be either ordered after the contraction rule in English or allowed to have a free ordering relation with it. I will discuss what implications these ordering arrangements have for negative placement.

I. Ordering: In this section I will make the claim that contraction is extrinsically ordered after the transformational rules of Conditional Inversion, Inversion accompanying negative constituent preposing and Inversion accompanying Only preposing. I will also claim that contraction is either ordered before or in a free ordering relation with the operation of WH-questions, rhetorical questions, yes/no questions, inversion in negative commands, tag questions and exclamatory inversion.

In each of the following three sets of facts there is a similar phenomenon occuring. The (a) sentences demonstrate the application of certain inversions.[1] The (b) sentences illustrate that such inversions can apply in negative sentences. The (c) sentences illustrate that the not cannot accompany the auxiliary in crossing the subject during these inversions. The (d) sentences show that the not cannot accompany the auxiliary in crossing the subject even if contraction has occured.

Conditional Inversion

1)a. ✓Had I gone to sleep, I would have missed the party
b. ✓Had I not gone to sleep, I would have collapsed where I stood
c. *Had not I gone to sleep, I would have collapsed where I stood
d. *Hadn't I gone to sleep, I would have collapsed where I stood

Inversion accompanying negative constituent preposing

2)a. ✓Never before had John been on time for an exam
b. ✓Never before had John not been on time for an exam
c. *Never before had not John been on time for an exam
d. *Never before hadn't John been on time for an exam[2]

Inversion accompanying Only preposing

3)a. ✓Only once a year did Little Red Riding Hood remember to say her prayers
b. ✓Only once a year did Little Red Riding Hood not remember to say her prayers
c. *Only once a year did not Little Red Riding Hood remember to say her prayers
d. *Only once a year didn't Little Red Riding Hood remember to say her prayers

The above facts are not very unexpected. If inversion transformations are formulated to switch a subject NP and the first auxiliary following it, we would not expect a third constituent, not, to move as well.[3] Thus we would not expect the above ungrammatical (c) sentences to be generated. There are still however several possible explanations for the ungrammaticality of the (d) sentences. It could be that our grammar simply has to contain a constraint stating that not, whether contracted or not, may not cross the subject during subject/auxiliary inversions. A second possibility is that since only a NP and the first auxiliary following it can be switched during inversion, maybe only a not which had been contracted to an auxiliary would be allowed to cross the subject. If we then said that these three inversions were ordered before contraction, the ungrammaticality ot the (d) sentences would be predicted since contraction could not have occured at the time of inversion and thus there would be no chance of a contracted not existing to accompany the auxiliary during inversion.

In the following set of facts the (a) sentences illustrate that there exists another group of inversions which can occur in sentences which are sententially negated. In these sentences however, the not can optionally cross the subject during inversion (the (b) sentences). Thus we can discard the first of the above possiblities which suggested that not cannot ever cross subjects during inversion transformations. However, in the following set of facts, in the (b) sentences, we see that even though the not can cross the subject, it can only do so when it has contracted with the auxiliary which is moved. As the (c) sentences show, if contraction has not taken place, the not cannot accompany the auxiliary. This suggests that the second of the possibilities given above is true and while the first set of inversions is ordered before contraction, this second set of inversions is ordered after contraction. Thus we can conceive of contraction as an optional rule. If it isn't applied, only the (a) sentences in the following set of facts can be generated. i.e. The not will not move with the auxiliary during inversion and thus will end up to the right of the inverted subject. However if contraction does apply, then the auxiliary and the not form one lexical item and are moved as a single lexical item during inversion.

An alternative way of explaining facts (4) through (9) would be to say that these inversions are freely ordered with contraction. According to such a theory, these inversions will sometimes occur before contraction and sometimes after contraction. If they apply before contraction, only the (a) sentences will be generated since the not won't be attached to the auxiliary at the time of inversion and thus won't be allowed to participate in the movement of the auxiliary. On occasions when these inversions occur after contraction, if contraction has occured the (b) sentences will be generated and if it hasn't occured only the (a) sentences will be generated. I have no evidence which enables me to choose between these two theories. However for purposes of clear exposition I shall refer to this second set of inversions as the inversions which occur after contraction. By using this wording I will not be making any claims as to whether this ordering relation is always true, as a result of extrinsic ordering, or sometimes true, as a result of free ordering.

In summary, by simply assuming that contraction is ordered so that it always occurs after the first set of inversions but may occur before the second set of inversions (either on account of being extrinsically ordered before this second set or because of being freely ordered with this second set), we can predict all of facts (1) through (9).

WH-Questions

4)a. ✓Who do you not know here?
  b. ✓Who don't you know here?
  c. *Who do not you know here?

Echo Questions

5)a. ✓What did Jack not want to eat?
b. ✓What didn't Jack want to eat?
c. *What did not Jack want to eat?

Yes/No Questions

6)a. ✓Do you not know him?
b. ✓Don't you know him?
c. *Do not you know him?

Tag Questions

7)a. ✓He's all grown up now, is he not?
b. ✓He's all grown up now, isn't he?
c. *He's all grown up now, is not he?

Inversion accompanying negative commands

8)a. *Do you not dare touch my tippets![14]
b. ✓Don't you dare touch my tippets!
c. *Do not you dare touch my tippets!

Exclamatory Inversion

9)a. ✓Is he not a beautiful baby!
b. ✓Isn't he a beautiful baby!
c. *Is not he a beautiful baby!

The inversions which are ordered after contraction form a distinct group for independently motivated reasons. First of all, they all generate sentences with marked illocutionary force: i.e. They are illocutionary acts of all kinds except statements. They include questions, exclamations and commands. The first set of inversions on the other hand produces sentences which, although slightly formal, are still statements. I shall hereafter refer to this second class of inversions as "illocutionary inversions".

Second of all, as we might expect from the fact that these post-contraction inversions are of marked illocutionary force, the sentences they generate cannot be embedded at all, not even to the degree that root transformations can be. This is to be expected since it is only the matrix sentence that can carry any illocutionary force.[5]

10) *Jack told me that don't you dare touch my tippets

11) *Jack loudly exclaimed that isn't she a beautiful baby

12) *Did Jack ask who don't you know here?

13) *Jack loudly asked what didn't Peter want to eat

14) *Jack said that do you not know him

15) *Jack asked whether Mary's all grown up now, isn't she

This is in marked contrast to the sentences generated by the first set of inversions. These sentences, not being of marked illocutionary force, can be embedded.

16) ✓ Jack reported that only once a year did Little Red Riding Hood not remember to say her prayers

17) ✓ Jack said that had he not gone to sleep when he did, he would have dropped in his tracks

18) ✓ Jack apologized and said that never before had he not been on time for an exam

II Implications for Negative Placement: In this section I will examine what relation the facts in part (I) have to negative placement. I will show that, under the assumption that negative placement places not in position after the first auxiliary, negative placement must be extrinsically ordered so as to precede the illocutionary inversions as well as the other three inversions which I discussed in part (I).

A. In this section I will discuss how negative placement interacts with the illocutionary inversions and contraction. In the following arguments I will be assuming that the rule of negative placement is formulated so as to place the not in position after the first auxiliary.

If we assume that negative placement precedes the illocutionary inversions, the interaction of these inversions with contraction works out in a straight forward manner. At the point when the illocutionary inversions take place, the not has already been put in position in the sentence. Since contraction is ordered befor the illocutionary inversions, it might or might not have taken place. If it has taken place, the contracted not will move when the auxiliary moves. If it has not taken place, then not won't move when the auxiliary moves. I will now proceed to demonstrate the inadequacies of a theory which has negative placement following the illocutionary inversions.

I am still assuming that negative -lacement is formulated to place not in the post-auxiliary position. Under such an assumption, if we have negative placement follow the illocutionary inversions, our grammar has to be complicated in two ways. First of all, we have to say that even though negative placement can place not where it normally does (i.e. post-auxiliary), if an illocutionary inversion has applied in the sentence, contraction is obligatory. If we don't say that contraction is obligatory under these conditions, there is nothing preventing sentence (19) from being generated as a final string.

19) *Why does not he want to go?

In addition, we'd have to say that if an illocutionary inversion has applied in a negative sentence, an exception can be made to the negative placement rule and not can also optionally be placed pre-VP (where VP is everything that follows the first auxiliary piece in an uninverted sentence) as well as post-auxiliary. We'd need this ad hoc exception in order to predict the two different positions that the not can end up in in sententially negated illocutionary inversions: pre-inverted subject (post-auxiliary) and post-inverted subject (pre-VP).

In summary, if negative placement applies pre-illocutionary inversion: (a) we can have the negative placement rule apply to sentences in a uniform manner, placing the not in some structurally defined position (b) the two different places that not can turn up in in an illocutionary inversion are predicted and (c) the condition of contraction for the post-auxiliary position of not is predicted since we have independent reasons for wanting our inversion rules to invert only the subject NP and the first auxiliary and nothing more. A theory which had negative placement ordered after the illocutionary inversions would be inadequate because it would do none of these three things.[6]

B. In this section I will discuss how negative placement interacts with the first set of inversions and contraction. My conclusion will be that negative placement is ordered before the first set of inversions. In the following arguments, as in section A, I am assuming that negative placement is formulated to place the not in the post-auxiliary position.

If negative placement precedes the first set of inversions, the not is already present in the sentence at the time the inversion occurs. However contraction cannot have taken place since contraction is ordered after the first set of inversions. Thus inversion can occur, but the not cannot accompany the auxiliary.

If, however, negative placement followed the first set of inversions, there would be no way of predicting the fact that the not doesn't turn up on the left side of the inverted subject, following the auxiliary, contracted or not. i.e. There would be no way of predicting the ungrammaticality of sentences such as the following:

20) *Were not I so fond of you, I would shoot you on the spot

21) *Weren't I so fond of you, I would shoot you on the spot

Therefore I conclude that negative placement is extrinsically ordered before the first set of inversions: conditional inversion, inversion accompanying negative constituent preposting and inversion accompanying only preposing.[7]

C. Readers may have noticed that there exists another inversion in English which seems to have a very different relation from the inversions I have been discussing with contraction and with negative placement. There-insertion is this inversion.

In this section I will present evidence that negative placement must follow there-insertion, a cyclic rule, and therefore not can neither be base generated nor placed pre-cyclically but rather must be placed either cyclically or post-cyclically.

Facts:

22) ✓There is a unicorn in the garden

23) ✓There is not a unicorn in the garden

24) ✓There isn't a unicorn in the garden

25) *There is a unicorn not in the garden

If negative placement preceded there-insertion we would expect sentence (25) to be grammatical since subject/auxiliary inversion rules must be formulated to switch nothing except the subject NP and the first auxiliary following it (as discussed in footnote (3)). Likewise we would expect sentence (23) to be ungrammatical since two lexical items, a not as well as an auxiliary, have crossed the subject. Both of these predictions are wrong. On the other hand, if we assume that negative placement follows there-insertion, all of the above facts are predicted perfectly. Presumably a not being placed looks for an auxiliary to follow. Thus there is no reason for it to be placed into the post-NP position, as in sentence (25) and every reason for it to be placed in the post-auxiliary position, as in sentence (23). Likewise there is no reason to expect obligatory contraction. There is however, as we would expect, optional contraction, since there-insertion precedes contraction. We know that there-insertion precedes contraction because there-insertion precedes negative placement but contraction follows negative placement.

Thus, since negative placement must follow there-insertion, a cyclic rule, not can neither be base generated nor inserted pre-cyclically.

Any ordering arrangement is odd and unexpected in the sense that we can always ask - why this ordering and no other. The ordering of negative placement with inversion rules is no exception. Notice however that it is less odd than it could have been. There-insertion is cyclic, negative placement follows there-insertion. Conditional inversion, inversion accompanying negative constituent preposing, inversion accompanying Only preposing and the illocutionary inversions are non-cyclic. Negative placement precedes them. Thus the occurence of negative placement divides transformational rules into two groups which are considered distinct groups for independently motivated reasons as well. This is less strange than if we had found out that negative placement followed some non-cyclic rules and all cyclic rules while preceding other non-cyclic rules. Of course there is no guarantee that future research won't turn up just such a situation.

As a result of the above observations I propose the tentative theory that negative placement is ordered so as to apply in the no-man's-land between cyclic and non-cyclic rules. This theory makes the prediction that any time some kind of ordering relation can be proven to exist between negative placement and a transformational rule, it will always be the case that cyclic rules must be ordered before negative placement and non-cyclic rules after negative placement.

III. Conclusion: In this squib I have shown the following:

a) Conditional Inversion, Inversion accompanying negative constituent preposing and Inversion accompanying Only preposing must precede contraction.

b) WH-questions, rhetorical questions, tag questions, yes/no questions, exclamatory inversion and inversion in negative commands either follow contraction or are freely ordered with respect to it.

c) The inversions which follow contraction are all illocutionary inversions. All illocutionary inversions follow contraction.[3]

d) Negative placement precedes all the above inversions.

e) Negative placement follows there-insertion.

f) Not is neither generated in place in the base nor placed precyclically by a negative placement rule.

g) I propose as a tentative theory that negative placement follows all cyclic rules and precedes all non-cyclic rules.

h) One interesting outcome is that contraction cannot be considered a mere phonological rule occuring on the very final sentence string. Indeed it is a syntactic rule that interacts with other syntactic rules. It is contraction that transforms two lexical items into one lexical item, two constituents into one constituent. And certain transformations, namely inversions, can only apply to one lexical item. The interesting part is figuring out exactly how to formulate this. Is contraction a process that is reflected both phonologically and syntactically? Or is it a syntactic rule with an obligatory phonological effect? Or is it a phonological rule with a syntactic effect?

Footnotes:

1) Because of various peculiar properties of these inversions it is impossible to construct uninverted negative versions of all these sentences:

a. With inversion accompanying only preposing an uninverted sentence is possible. However, because only is an adverb that participates in scope relations, the uninverted sentence has a different meaning than the sentence in which inversion has taken place:

(i)a. ✓Only once a year does Little Red Riding Hood not remember to say her prayers
b. ✓Little Red Riding Hood doesn't remember to say her prayers only once a year

b. If inversion does not take place, conditional inversion sentences no longer retain their conditional sense. There do exist conditional sentences with if clauses (with uninverted order) instead of inversion. It is possible that conditional inversion sentences are derived from sentences with such if clauses. The allowed verb tenses and moods in the if clause and matrix clause are the same as in the conditional inversion clause and matrix clause. On the other hand, there is no evidence that the two constructions are not simply derived from the same deep structure.

c. Negative constituent preposing accompanied by inversion is generally obligatory:

(ii)a. ✓Not without cause did he not speak the truth
b. *He did not speak the truth not without cause
c. *Not without cause he did not speak the truth
(iii)a. ✓Seldom do I not know what to say in an awkward social situation
b. *I do not know what to say in an awkward social situation seldom
c. *Seldom I do not know what to say in an awkward social situation

It is of course possible that negative adverbs are base generated in sentence initial position and that it is their presence in such a position that causes inversion to occur. If such an analysis is correct, we would not expect sentences (iib) and (iiib) in which the negative adverb occurs sentence finally to be grammatical.

2) For reasons which I don't understand there appear to be varying degrees of grammaticality in such sentences as these:

(i) *Seldom don't I know what to say in an awkward social situation
(ii) *Not only in winter but even in summer won't I be allowed to have icecream for breakfast
(iii) *Not only can't I dive, I can't even swim
but:
(iv) ?Not only don't I like pickles, I don't even like icecream

3) If subject/auxiliary inversions were not formulated to switch nothing except the subject of the sentence and the first auxiliary that follows, word salad would result. This is obvious in any sentence we examine:

(i)a. ✓Is Martha in the house?
b. *Is in the house Martha?
c. *Is in Martha the house?
d. *Are ready Jack and Jill to eat?
(ii)a. ✓Should I have been more careful?
b. *Should have I been more careful?
c. *Should have been I more careful?

4) Under an inversion analysis the ungrammaticality of sentence (8a) is inexplicable. Why shouldn't inversion accompanying negative commands be allowed to leave the not behind just like all other inversions of this class can? In any case, assuming that this is indeed an inversion transformation, inversion accompanying negative commands can still be used as evidence for the ordering relation I am claiming exists between contraction and all illocutionary inversions. It can be used as evidence because without the ordering relation I propose, the fact that sentence (i) is grammatical while sentence (ii) isn't remains unpredicted, regardless of the status of (iii).

(i) ✓Don't you pinch your sister, Willy Blodgett
(ii) *Do not you pinch your sister, Willy Blodgett
(iii) *Do you not pinch your sister, Willy Blodgett

See my squib " Don't You Dare " (1976, unpublished) for an alternative analysis of this construction which does not involve inversion and which predicts that (iii) as well as (ii) is ungrammatical.

5) The embedded sentences should be read as indirect, not direct quotations. After all, anything can be embedded as a direct quotation:

(i) ✓Jack said "Tworps eatly orange runned gentleman"

6) As I emphasized in section (IIA), my arguments for ordering negative placement before the illocutionary inversions are based on the assumption that negative placement is formulated so as to place the not in the post-auxiliary position. In this footnote I am going to discuss what happens if we instead assume that negative placement is formulated to place the not pre-VP (where VP is everything that follows the first auxiliary in an uninverted sentence).

Notice that under such an assumption we could have the exact same ordering arrangement I proposed earlier: negative placement followed by contraction followed by the illocutionary inversions. However there would no longer be any need to have this extrinsic ordering of negative placement with the illocutionary inversions. Instead we could have free ordering. Under such a theory, negative placement would sometimes occur before the illocutionary inversions. If it did, contraction might or might not occur. If contraction did occur, the *not* would move when the auxiliary moved. If contraction didn't apply, the *not* wouldn't move and in the surface structure would end up to the right of the inverted subject (pre-VP position). On the other hand, if negative placement happened to occur after the illocutionary inversions, there would be no problems because negative placement would place *not* in the post-subject (pre-VP) position. There would be no chance of the *not* being placed in the post-auxiliary position since the negative placement rule would have been formulated to place *not* in the pre-VP position. Thus there would be no chance of the following ungrammatical sentence being generated:

(i) *Into which of these cups did not you want me to put sugar?

The reason why I have given this alternative theory only footnote status is because I see no good reason for adopting it. It forces us to formulate negative placement in a way that seems less likely than the post-auxiliary formulation.

7) As I pointed out in section (IIB), my arguments for ordering negative placement before the first set of inversions are based on the assumption that negative placement is formulated to place the *not* in the post-auxiliary position. Notice that if we were willing to confine our formulation of the negative placement rule to the pre-VP formulation (where VP is everything that follows the first auxiliary piece), there would be an alternative way to the one I proposed in part (I) of predicting facts (1) through (3).

If negative placement is extrinsically ordered after the first set of rules and obligatorily formulated to apply pre-VP, then there is no need to order these inversions before contraction. The *not* would automatically be generated in just the one place. Sentence (i) would be generated, sentence (ii) would have no chance of being generated:

(i) ✓Seldom do I not know what to do in an awkward social situation
(ii) *Seldom don't I know what to do in an awkward social situation

Notice that in choosing between these two theories it's a trade off between (a) having to extrinsically order the first set of inversions before contraction and after negative placement and (b) extrinsically ordering negative placement after the first set of inversions and choosing the pre-VP formulation of negative placement. This extrinsic ordering of negative placement would be necessary once we got rid of the extrinsic ordering of the contraction rule because if we didn't have this extrinsic ordering of negative placement there would be nothing to prevent the following sequence from producing the final ungrammatical sentence:

phrase structure rules: NEG I had gone to sleep when I did.....
neg-lowering: I had not gone to sleep when I did.....
contraction: I hadn't gone to sleep when I did.....
Conditional Inversion: *Hadn't I gone to sleep when I did.....

I have given this second theory only footnote status for the same reason that I gave the theory in footnote (6) only footnote status. Both theories are crucially dependent on choosing a pre-VP formulation of negative placement. Such a formulation of negative placement is based on the assumption that there exists a constituent "VP" which is structurally defined as being everything that follows the first auxiliary piece in a sentence that has not yet undergone any transformations. I know of no clearcut evidence which would force me to admit the existence of such a constituent. There are several other conceivable ways of dividing up into constituents what follows the subject of a sentence. On the other hand, any conceivable method of dividing up into constituents what follows the subject of the sentence will always result in the first auxiliary piece being considered a constituent. Thus it will always be possible to have a post-auxiliary formulation of negative placement. In addition, even if it were possible to prove that there exists a constituent "VP" where VP is everything that follows the first auxiliary piece, I know of no evidence which would make me lean towards choosing a pre-VP rather than a post-auxiliary formulation of negative placement.

Thus, as I did in the case of the illocutionary inversions (section (IIA)), I am choosing the formulation of negative placement which has not put in the post-auxiliary position. The reason I brought up these alternative theories at all was to show what the consequences would be if at some future date someone found positive evidence that (a) there is a constituent "VP" and (b) negative placement must be formulated to place not in the pre-VP position.

8) Some readers may have noticed that there exists in English another illocutionary inversion which seems to contradict my claims:

(i) ✓May you live happily ever after
(ii) *Jack said that may you live happily ever after

As the above contrast shows, this "hortatory" construction behaves syntactically like an illocutionary inversion. It is completely unembeddable. Notice that unlike other illocutionary inversions however, the not may not cross the subject during inversion whether contracted or uncontracted. It has to remain to the right of the inverted subject:

(iii) ✓May you never/not ever have to suffer what I have suffered
(iv) *May not you ever have to suffer what I have suffered
(v) *Mayn't you ever have to suffer what I have suffered

This would seem to put this inversion in a class with those inversions that precede contraction, thus disproving any generalization which claimed that the inversions preceding contraction are non-illocutionary and those following contraction are illocutionary. Observe however that the auxiliary may doesn't allow contraction anywhere:

(vi) ✓Jack may not leave
(vii) *Jack mayn't leave

Therefore we would expect sentence (v) to be ungrammatical. Thus my generalization about illocutionary and non-illocutionary rules isn't broken, even if it isn't supported.

Don't You Dare !

Ava-Robin Cohen

0. Introduction: This squib will discuss the class of negative imperative sentences in English in which a NP turns up in the post-don't position. An example of such a sentence is the following:

(1) ✓ Don't you pinch your sister, Willy Blodgett

This construction possesses obvious similarities to all constructions derived by means of a subject/auxiliary inversion:

(2) ✓ Don't you know her? (yes/no questions)
(3) ✓ Isn't he a beautiful baby! (exclamatory inversion)
(4) ✓ Why doesn't Igor want to be a doctor? (WH-Questions)

These similarities seem to indicate that negative imperatives with a post-don't NP should be derived by an inversion transformation which operates in a way analogous to all subject/auxiliary inversions. Such an analysis has in fact been proposed by Emonds (1970, p. 5). This is the only reference to such constructions that I have been able to find in the literature.

The main motivation for the derivation by inversion proposed above is that sentence (1) looks exactly like the result of a subject/auxiliary inversion, a type of transformation we need in our grammar for independently motivated reasons.

There is however an alternative analysis which could be proposed and justified on the same grounds -- that our grammar needs the devices it employs in any case. Thus we might propose that sentence (1) is the result of a negative particle _don't_ being generated sentence initially in an imperative sentence. The following sentence shows that we need in our grammar a _don't_ particle which can be generated in front of imperatives. Notice that in this sentence a subject/auxiliary inversion analysis is impossible:

(5) ✓ Don't let's get run over

The purpose of this scuib is to examine and decide between these two alternative analyses. My conclusion will be that while it is impossible to maintain the inversion analysis, the _don't_-particle analysis accounts for all the facts and therefore must be correct.

In part (1) I will briefly mention some of the interesting and relevant characteristics of negative imperatives with a post-_don't_ NP. In part (2) I will outline the inversion analysis. In part (3) the _don't_ particle analysis will be presented. Part (4) will be a discussion and conclusion.

1.. *Characteristics of the Construction*: In this section I will discuss some of the distinguishing characteristics of negative imperatives with a NP in the post-*don't* position. The two alternative analyses for this construction will be evaluated on the basis of how well they each account for these facts.

1.1 *Class of NPs in post-don't position*: All of the NPs which can turn up in the post-*don't* position are marked second person in some way except for a few indefinite pronouns which can occur without being so marked. Being marked second person however is not a sufficient condition for being allowed to turn up in the relevant position. What NPs can turn up will be discussed in more detail in part (2). Meanwhile, here are a few examples:

(6) ✓ Don't you pinch your sister, Willy Blodgett
(7) ✓ Don't you kids bring that filth in the house
(8) ✓ Don't all talk at the same time
(9) ✓ Don't anybody touch my pineapple
(10) ✓ Don't any of you old ladies wearing lipstick dare kiss me
(11) ✓ Don't only a few of you go. The voyage is too dangerous for small groups.

1.2 *The Negative in Imperatives with post-don't NP*:

1.2.1 NPs appear in the post-auxiliary position only in negative, not in positive imperative sentences:

(12)a. √Don't you move
b. *Do you move

(13)a. √Don't you kids try and fool me
b. *Do you kids try and fool me, you'll see what happens

(14)a. √Don't anyone taste my pineapple
b. *Do no one taste my pineapple

The problem can't be the presence of the emphatic do because without the NP the sentences are fine:

(15)a. √Do move
b. √Do try and fool me, you'll see what happens
c. √Do taste my pineapple

1.2.2 The not may not appear to the right of the relevant NP:

(16)a. √Don't you move another step forward
b. *Do you not move another step forward

1.2.3 The not must be contracted to the do:

(17)a. √Don't you take another step
b. *Do not you take another step

1.3 In the construction I am discussing the NP is in the post-don't position and not anywhere else:

(18)a. √Don't you dare touch my pineapple
b. *Don't dare you touch my pineapple
c. *Don't dare touch you my pineapple
d. *Don't dare touch my pineapple you (unstressed you)

1.4 Native speakers interpret the post-don't NP as somehow being the doer of the potential action.

2. *Inversion Analysis*: In this section I will see what evidence exists for having negative imperatives with a post-*don't* NP derived by means of a subject/auxiliary inversion transformation. Under such an analysis the post-*don't* NP is base generated as a subject in sentence initial position.

2.1.1 As the following list shows, the exact same NPs can appear in normal subject position in imperatives as can appear in the post-*don't* position in negative commands:[2]

(19)a. ✓Don't you move
b. ✓You get out of here or else

(20)a. ✓Don't you kids touch anything
b. ✓You kids eat your dinner or else

(21)a. ✓Don't anyone move
b. ✓No one move

(22)a. ✓Don't anybody move
b. ✓Nobody move

(23)a. ✓Don't everyone leave at the same time
b. ✓Everyone leave at the same time

(24)a. ✓Don't everybody go
b. ✓Everybody scat

(25)a. ✓Don't both of you go
b. ✓Both of you get out of here

(26)a. ✓Don't you both buy it
b. ✓You both get on that plane immediately

(27)a. ✓Don't all of you go
b. ✓All of you get going now

(28)a. ✓Don't you all go
b. ✓You all brush your teeth now

(29)a. ✓Don't any of you move
b. ✓None of you move if you know what's good for you

(30)a. ✓Don't only a few of you go
b. ✓Only a few of you go - I don't want to be left alone

Likewise, any NPs which cannot appear in the sentence initial position can't appear in the post-don't position either. Some examples are as follows:

(31)a. *Don't the majority of you go
b. *The majority of you go

(32)a. *Don't each go
b. *Each go then

(33)a. *Don't each of you/ you each go
b. *Each of you/ you each scram

2.1.2 Certain indefinite pronouns, when they appear in imperative sentences, have the choice of triggering either second or third person pronouns in agreement. This choice is retained whether the pronoun is in the post-don't or the sentence initial position:

(34)a. ✓ Nobody shrug his shoulders when the principal comes in
b. ✓Nobody shrug your shoulders when the principal comes in
c. ✓Don't anybody shrug his shoulders when the principal enters
d. ✓Don't anybody shrug your shoulders when the principal enters

2.1.3 We have other inversion transformations in English which must be formulated to switch the auxiliary and the subject, such as inversion with WH-questions or yes/no questions.

Thus, in negative imperatives where the NP ends up is predicted once an inversion analysis is accepted.

2.1.4 The contrast:

(35)a. *Do not you dare
b. √Don't you dare

will be predicted because then inversion accompanying negative commands will just be behaving exactly like all other illocutionary inversions in English. In illocutionary inversions in negative sentences the not is allowed to accompany the auxiliary in crossing the subject, but only if contraction has occured. This is discussed in more detail in Cohen (1978).

(36)a.√ Why didn't you want to taste my pineapple?
b. *Why did not you want to taste my pineapple?

2.1.5 The fact that the inversion analysis has the post-don't NP moved from subject position agrees with native speaker judgements that this NP is somehow the performer of the potential action.

We seem to have a perfect situation in which to claim that negative imperatives with a NP in post-don't position are derived from negative imperatives with a NP in subject position. The way the neg and the indefinite pronouns get into the proper relations with each other will be taken care of by whatever process it is that makes neg/ indefinite pronoun relations turn out right in any subject/ auxiliary inversion:

(37)a. ✓Didn't anybody bake a cake?
b. *Anybody didn't bake a cake?

In the following section I will point out that despite these attractive aspects of the inversion analysis, it leaves two very important facts unaccounted for.

2.2 An inversion analysis leaves unexplained the following:[1]

2.2.1 Why inversion can't occur in positive imperatives despite the fact that all the other subject/auxiliary inversions we know of can occur in both positive and negative sentences:

(38) *Do you bring me my bible, Willy

2.2.2 Why, as in the following sentence, the not can't be left behind:

(39)a. *Do you not move another inch forward
b. ✓Don't you move another inch forward

while in other subject/ auxiliary inversions it can be:

(40)a. ✓Have you not been a bit abrupt?
b. ✓Haven't you been a bit abrupt?

(41)a. ✓Which of these books do you not wish to read?
b. ✓Which of these books don't you wish to read?

3. **The Negative Particle Analysis**: In this section I will propose that the *don't* in negative imperatives with a post-*don't* NP is a negative particle which is generated sentence initially in negative imperative sentences. I will now argue for such an analysis:

3.1.1 Notice that the same set of facts which argued for the inversion analysis by showing that the relevant NPs had once been in subject position argue for the *don't* particle analysis for exactly the same reason.[3,4]

3.1.2 Jorge Hankamer (personal communication) has pointed out to me that the position in which the particle is generated is non-ad hoc for universal reasons. i.e. In verb-non-final languages which don't have a neg-placement rule, the neg generally occurs sentence initially.

3.1.3 If the particle analysis is true, we would not expect the following ungrammatical sentence to be generated:

(42) *Do you not move

After all, I am not arguing for the existence of a *do* particle. Recall that the inversion analysis makes no such prediction about the ungrammaticality of sentence (42).

3.1.4 Also, since I am not claiming that a *do* particle exists, there is no reason for the following ungrammatical sentence to be generated:

(43) *Do you move

Again, the inversion analysis makes no such prediction.

3.1.5 The don't particle analysis accords with the native speaker's intuitions that the post-don't NP is somehow the performer of the potential action since, like the inversion analysis, it analyzes the post-don't NP as a subject.

Notice that the thing that is oddest about this analysis is the fact of the existence of the don't particle at all. i.e. What justification do I have for postulating the existence of a particle with certain properties even if it explains the facts? After all, there must be other ad hoc devices that would be equally satisfactory. In the following two sections I will show that our grammar of English has to contain a don't particle with exactly the same properties as I have outlined above in order to explain certain facts for which no analysis other than the don't particle analysis is possible.

3.1.6 (44) ✓Don't let's eat it right away

In the above sentence it is impossible to analyze the don't as anything but a negative particle. It is impossible that it is the result of a subject/auxiliary inversion because there is no subject. Notice that contraction is obligatory here too, just as we would expect if it is the same particle as is involved in second person imperatives:

(45) *Do not let's eat it right away

3.1.7 There exists a minority dialect which accepts such sentences as the following:

(46) √Let's don't go tonight

In sentence (46) it appears that the negative particle don't has undergone movement in what seems to be a generaliztion of the neg-placement rule. Notice that here too contraction is obligatory:

(47) *Let's do not go tonight

3.1.8 This don't particle appears to be a peculiarly "imperative" particle even when just used in place of an ordinary not as in sentence (46). Notice the contrasts in grammaticality among the following sentences. All are ungrammatical but the imperative sentences are better than the non-imperative sentences:

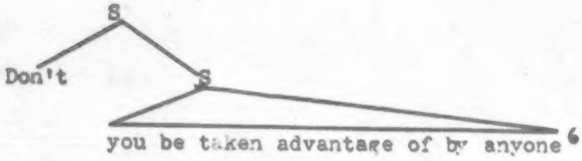
(48) *Don't dare don't send the letter! (imperative)
(49) *We don't dare don't send the letter. (non-imperative)
(50) *You don't dare don't send the letter.(non-imperative)

3.2 The Generation of the don't Particle: Assuming that there is such a thing as a don't particle, how and under what conditions is it generated sentence initially in imperative sentences?

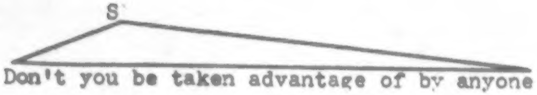
3.2.1 I know of no evidence which would enable me to choose between the following two tree structures for sentence (51). Both seem equally likely.

(51) Don't you be taken advantage of by anyone, Willy

(a)


S
Don't
S
you be taken advantage of by anyone

(b)


S
Don't you be taken advantage of by anyone

3.2.2 The don't particle can be generated sentence initially in any imperative sentence whether second or first person. Notice that this means that sentences such as the following have an ambiguous derivation even though they are unambiguous in meaning:

(52) ✓ Don't go away

Sentence (52) can be generated (a) by you-deletion taking place in a sentence in which normal neg-placement occurs or (b) by a don't being generated sentence initially. We know that the (a) derivation is possible since there is not obligatory contraction:

(53) ✓Do not go away

Thus there is no reason for us to claim that the don't in sentences such as (52) gets into its surface structure position only by means of the don't particle analysis.

3.2.3 A sentence can only be sententially negated once. Therefore the don't particle, a particle limited to sentential negation, is present in an imperative sentence only if a sentential not is not present. Likewise, a sentential not can't be present if the don't particle is present. This restriction does not preclude the possibility of there being constituent negation in a sentence in which there is also sentential negation:

(54)a. ✓Well, don't not go. That would be cutting off your nose to spite your face
b. ✓Don't you not send the letter!

4. Discussion and Conclusion:

As an analysis for such sentences as the following I have proposed two alternative solutions:

(55) ✓Don't you pinch your sister, Willy Blodgett

One of the proposals was an inversion analysis. It predicted all the characteristics of such constructions except:

(a) why this inversion only occurs in negative sentences, not in both positive and negative sentences as do other subject/auxiliary inversions.

(b) why the *not* can be left behind by the auxiliary in other subject/auxiliary inversions but not in this one. In this construction the *not* obligatorily accompanies the auxiliary during inversion.

The second proposal is the *don't* particle analysis. It claims that a negative particle *don't* is generated at the front of an imperative sentence. I have not been able to find any flaws in this analysis. Therefore I am going to accept it, rather than the inversion analysis, as being the correct one. This choice is based on the assumption that we would like a single derivation to generate all negative imperatives with a post-*don't* NP. If we were willing to have the facts accounted for in a non-uniform manner the inversion analysis could still be used to generate sentences in which the post-*don't* NP was an indefinite pronoun capable of neg-assimilation (see footnote (1) for further discussion of the way in which these pronouns behave in negative imperatives). At the moment I see no way in which having two distinct derivations for negative imperatives with a post-*don't* NP could be justified when having a single derivation, the *don't* particle analysis, explains all the facts equally well.

I confess that I am not entirely at ease with this solution:

(a) The inversion analysis seems to be too close to the truth to be discarded as totally irrelevant to negative imperatives with a post-don't NP. It would be possible to patch up its flaws by saying that for some unknown reason analogy has occured between indefinite pronouns which can undergo neg-assimilation and the other NPs which can appear in the post-don't position. Thus what is explained for the indefinite pronouns which can undergo neg-assimilation would be explained for the other NPs as well -- at least to the degree that analogy ever explains anything.

(b) The facts that follow were garnered from Visser (1970).

Historically speaking an inversion analysis must have at one time been accurate. Only thus could the presence of simple verbs in the pre-you position in imperative sentences have been accounted for. Such inversions occured before the existence of the do-support do. No particle analysis could predict what turns up in the pre-you position in sentences such as the following unless a particle could be almost any verb in the language:

(56) Go you now (Visser discusses this sentence type vol. II, pp. 798-800)

Nowadays such constructions only survive in a few stock phrases such as "mind you" and "believe you me".

Also, in a past stage of English, after do-support became common, sentences such as the following existed:

(57) Do you bring me my snuff (see Visser, vol. III, p. 1520 for discussion)

At the point in time when this construction existed, although it would have been possible to maintain a particle analysis which claimed that there existed both a *do* and a *don't* particle, equally likely would have been an inversion analysis.

I have been unable to find any examples of sentences such as the following:

(58) Do you not go

Recall that it is the lack of sentences such as (58) which causes problems for the inversion analysis in modern English. However my search was by no means exhaustive and the fact that I didn't find any doesn't mean there weren't any. Notice that if there were no such sentences existing contemporaneously with sentences such as (57) it would be a flaw in the *do*/*don't* particle analysis as well as in the inversion analysis since there seem to be no reasons why constituent negation shouldn't apply to a sentence such as (57), placing the *not* in the post-*you* position in order to negate the following verb form.

Visser himself believes that sentences such as (57) are not the result of inversion. He seems to be basing this claim (vol. III, p. 1520) on the fact that for sentences in which no _you_ is present between the _do_ and the following verb form he has some evidence that the _do_ is not just the do-support _do_. This evidence is six sentences (volume III, p. 1517-1518) in which both the _do_ and the other verbal element in the sentence are fully inflected. For example:

> (c. 1390, Sir Gawain and the Green Knight, 1532)
> I com hider...To lerne at yow sum game; Dos
> techez me of your wytte

Since at this point in time the imperative form of the verb was not yet identical with the unmarked form of the verb, in the above sentence it is easy to tell that the "techez" is an imperative.

Unfortunately for researchers, these few examples that Visser gives are all that there are. At the time do-support developed, the verb inflection system already resembled our modern one in which the unmarked verb form and the imperative verb form are indistinguishable.

Thus the historical evidence is too ambiguous to give us any help in analyzing what the present situation in English is.

As a final comment I would like to point out that in every other case where there was historically a subject/verb inversion with simple verbs (yes/no questions, Wh-questions), once do-support developed there was a transition from subject/verb inversion to subject/auxiliary inversion. It is slightly peculiar if this is not what happened in the case of negative imperatives and if the subject/verb inversion simply died out and was replaced by a do/don't particle construction which later lost its do half. On the other hand, even if peculiar it is perfectly possible.

In summary, even though I am accepting the don't particle analysis as the correct one for negative imperatives with a post-don't NP in modern English, I am doing so with a grain of salt.

Footnotes:

1) As the reader will have noticed, except for the indefinite pronouns that allow negative assimilation, I did not give examples of uninverted imperatives which were negative. This is because in most dialects such sentences are ungrammatical:

(i) *You don't move

This inexplicable problem is separate from the problem I am concerned with. No imperative sentence can appear in surface structure with the subject still in place if there is an auxiliary in the sentence. This is true despite the fact that auxiliaries can appear in an imperative sentence if there is no subject present:

(ii)a. ✓You eat it, or else
b. ✓Eat it, or else

(iii)a. *You do eat it, please
b. ✓Do eat it, please

(iv)a. *You don't touch it if you know what's good for you
b. ✓Do not/don't touch it if you know what's good for you

There is a minority dialect which considers sentences such as (iva) grammatical in situations where dogs or small children are being addressed. There is no dialect known to me which considers sentence (iiia) grammatical.

2) Notice that the idiosyncracies of this construction which I detailed in 2.2.1 and 2.2.2 are entirely predicted in the case of those indefinite pronouns which are able to undergo negative assimilation: any of NP, anyone (of NP), anybody, either(one) of NP.

We would not expect these indefinite pronouns to occur in positive imperatives which have undergone inversion since they can't occur as subjects in positive imperatives which have not undergone inversion:

(i) *Anybody come here immediately

The indefinite pronouns with "some" are used in such a situation:

(ii) ✓Somebody come here immediately

Second of all, when these neg-assimilating indefinite pronouns are used in any negative sentence, neg must precede the pronoun:

(iii)a. *Do anybody not touch my pineapple
b. √Don't anybody touch my pineapple

(iv)a. *Anybody wasn't in the cage
b. √There wasn't anybody in the cage

The 2.2.1 and 2.2.2 facts are however still unexplained for you, you NP, non-neg-assimilating indefinite pronouns (such as everybody) and quantifier pronouns (such as both of you).

3) Both and all can occur in the post-don't position but they cannot occur as subjects in positive imperatives:

(i)a. *Both go
b. *All go

(ii)a. √Don't both go
b. √Don't all go

These facts are equally a problem for both the inversion analysis and the don't particle analysis.

I am going to claim that pre- inversion(or pre-addition of don't particle) sentences (iia) and (iib) look like this:

(iii)a. $\begin{Bmatrix}\text{Don't}\\ \text{NEG}\end{Bmatrix}$ Both of you go
b. $\begin{Bmatrix}\text{Don't}\\ \text{NEG}\end{Bmatrix}$ All of you go

The of you is optionally deleted when the inversion takes place.

The evidence for such a deletion rule is as follows:

(iv)a. √Don't both/all shrug your shoulders
b. *Don't both/all shrug his/their/our shoulders

If the both and all are not marked for person at some point, there will be no way to predict the contrast between (iva) and (ivb). After all, as was pointed out in section 2.1.2, the other indefinite pronouns, such as anyone, can trigger either second or third person pronouns. However if we assume that in the deep structure the subjects of these sentences were marked for person, the contrast is predicted. Since they are imperative sentences, if the subjects are marked for any person it will be second person. Pronouns whose person was controlled by the person of the subject through some agreement process would thus also be in second person. Therefore we would expect sentence (iva) in which the controlled pronoun is "your" to be grammatical but not sentence (ivb) in which the controlled pronoun is "his/their/our"

4) Jorge Hankamer (personal communication) has pointed out the following contrast:

(i)a. ✓Don't another one of you come in here
b. *Another one of you come in here

These facts are a problem for the inversion analysis and for the *don't* particle analysis. In both these analyses "another one of you" is originally generated as a subject in normal subject position, a position in which this pronoun causes the sentence to be ungrammatical.

It seems that there are certain pronouns, such as "another one of you" which appear only in negative, not in positive imperatives. Whether we consider that negative imperatives with a post-*don't* NP are made negative by *don't*, a negative particle, or the more common negative particle *not* we still have to say that "another one of you" cannot be generated as subject in an imperative sentence unless that sentence has been sententially negated.

5) It does not really matter whether *let's* is a particle or an obligatorily contracted form of "let us" - a second person imperative with an object. In both cases the argument holds true - there are no inversions in English which involve inverting either a particle or a verb plus object with an auxiliary.

6) Readers might have noticed that there is something funny about the following sentence:

(i) *You be taken advantage of

This is because you cannot command someone to be the involuntary object of some action even though you can command them to voluntarily avoid being the object of some action. As the following contrast illustrates, what is wrong with sentence (i) is not the presence of a *you*:

(ii)a. ✓Do not be taken advantage of
b. *Be taken advantage of

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The Role of the Subject/Non-Subject Distinction in Determining the Choice of Relative Clause Participle in Turkish

Jorge Hankamer and Laura Knecht
Harvard MIT

1. Relativization in Turkish: Introduction and Background

Turkish relative clauses are participial constructions in which the verb of the relative clause appears in a non-finite form. Turkish being a canonical SOV language, relative clauses precede their heads and relativization is accomplished by deleting the target in the relative clause which is understood as coreferent with the head.

Examples (2)a and b below are relative clauses formed on the subject and object respectively of the transitive sentence in (1):

(1) The snake ate the squash.
Yɨlan kabağ-ɨ ye-di.
snake squash-ACC eat-PAST

(2)a. the snake that ate the squash
Ø kabağ-ɨ yi-yen yɨlan
squash-ACC eat-SP snake

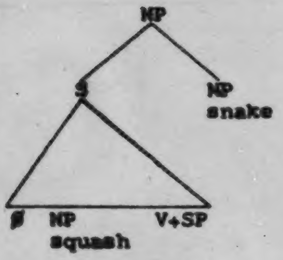
b. the squash that the snake ate
yɨlan-ɨn Ø ye-diğ-i kabak
snake-GEN eat-OP-POSS squash

Notice that in (2)a, where a subject has been relativized, the verb of the relative clause (henceforth RC) appears with the participial suffix -*(y)An*[1] whose phonological shape varies according to regular phonological rules like vowel harmony. RC's constructed in this way are called 'subject participle' (SP) relative clauses.

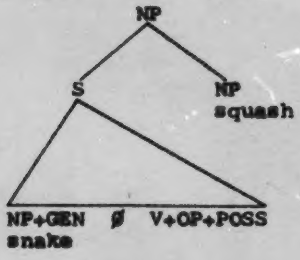
In (2)b, where the object has been relativized, the verb of the RC is suffixed with the participle -*DIK* followed by a possessive suffix. The possessive suffix agrees in person and number with the subject of the RC which appears in the genitive. We call this the 'object participle' (OP) construction.

The two types of RC are represented schematically below.

SP Construction
(2a)



OP Construction
(2b)



We see in the simple cases that the SP appears when the target of relativization is the subject of the RC and the OP appears when the target is a non-subject.

This statement is not entirely adequate, however. Genitive NP's are freely relativizable in Turkish, and when we relativize the genitive in a sentence like (3) below, we get SP as in (4a). Notice that the target of relativization here is not a subject but a genitive NP attached to a subject.

(3) The man's snake ate the squash.
Adam-ın yılan-ı kabağ-ı ye-di.
man-GEN snake-POSS squash-ACC eat-PAST

(4) the man whose snake ate the squash

a. Ø yılan-ı kabağ-ı yi-yen adam
snake-POSS squash-ACC eat-SP man

b. *Ø yılan-ının kabağ-ı ye-diğ-i adam
snake-POSS-GEN squash-ACC eat-OP-POSS man

The simple principle also fails to account for another class of cases, discussed in Underhill (1972). These are cases where the target of relativization is a genitive NP attached to a locational or directional phrase in a sentence with an indefinite subject. Consider sentence (5), which contains the ablative phrase kapının altından. This sentence has two readings: one in which the subject is interpreted as an indefinite as in 'Water is flowing under the door' and another in which the subject is interpreted as a definite as in 'The water is flowing under the door'.

(5) Water is flowing under the door.
The water is flowing under the door.

Kapɨ-nɨn alt-ɨn-dan su ak-ɨyor.
door-GEN bottom-POSS-ABL water flow-PRES

It turns out that choice of participial construction correlates with the definiteness of the subject. Relativizing the genitive NP kapɨnɨn in (5) results in the SP when the subject of the RC is indefinite. However, the OP appears if the subject is definite. These facts are illustrated in (6)a and b below.

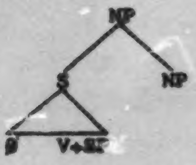
(6)a. the door under which water is flowing
Ø alt-ɨn-dan su ak-an kapɨ
bottom-POSS-ABL water flow-SP door

b. the door under which the water is flowing
Ø alt-ɨn-dan su-yun ak-tɨğ-ɨ
bottom-POSS-ABL water-GEN flow-OP-POSS
kapɨ
door

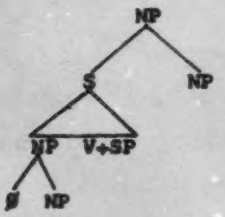
In seeking an explanation for this phenomenon, Underhill noted first that if the subject in sentences like (5) is to be interpreted as an indefinite, it obligatorily appears in immediate pre-verbal position. If it is to be interpreted as a definite, this displacement is optional. He therefore proposed that indefinite subjects are displaced from initial position by an obligatory rule of Indefinite Movement which applies before relativization. Definite subjects may be displaced by an optional rule of scrambling which follows relativization.[2] He furthermore suggested that the genitive marking is assigned to NP's by a transformational rule and therefore that these NP's are underlyingly caseless. Underhill then proposed the following principle: choose the SP when the target of relativization is a caseless NP in initial position at the time of RC formation. Otherwise, choose the OP.

To see how this principle works in conjunction with Underhill's assumptions about the rules involved, consider the diagram given below. In Case I, the target of relativization is a subject NP which is sentence-initial and caseless at the time of RC formation. In accordance with the principle, the SP results. In Case II, the target of relativization is a genitive NP attached to a subject; such an NP is initial and caseless given Underhill's assumptions, and again the principle correctly predicts the SP. In Case III, the RC is formed on a sentence with an indefinite subject; this subject is moved to immediate pre-verbal position prior to relativization, leaving in initial position a genitive NP attached to an oblique phrase. This genitive NP will be caseless at the time of RC formation, according to Underhill's assumptions, and the SP is again correctly predicted.

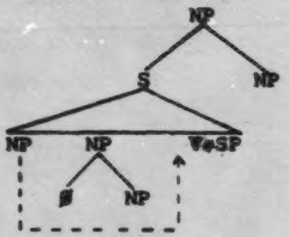
Case I: Ø Subject



Case II: Ø GEN on Subject



Case III:
Ø GEN on Oblique Phrase in S with INDEF Subject



Underhill's proposal is summarized below.

Underhill's Proposal

Assumption: Genitive NP's are underlyingly caseless.

a. Indefinite Movement precedes relativization.

b. Scrambling follows relativization.

c. Participles are chosen according to the principle:
if the target of relativization is a caseless NP in initial position at the time of RC formation, the SP construction is chosen; otherwise, the OP is chosen.

The theoretical interest of Underhill's analysis is that the factors determining the choice of participial construction are *linear position* and *case-marking*.

Thus, the distinction between subject and non-subject which seemed to be the determining factor in the simple cases turns out to be irrelevant under Underhill's analysis. The relativization transformation can be written entirely within the framework and formalism of Standard Theory.

For an immediate counterexample to Underhill's proposal, consider the sentence in (7). It contains an indefinite subject in immediate pre-verbal position and two oblique phrases: kapɨnɨn altɨndan and yerin üzerine.

(7) Water is flowing under the door onto the floor.

Kapɨ-nɨn	alt-ɨn-dan	yer-in
door-GEN	bottom-POSS-ABL	floor-GEN

üzer-in-e	su	ak-ɨyor.
top-POSS-DAT	water	flow-PRES

Both genitive NP's in these oblique phrases can be relativized and while they both may be caseless at the time the rule applies, they cannot both be clause-initial. Thus, Underhill's proposal would predict that relativization of one of the genitive NP's should result in the SP while relativization of the other genitive NP should result in the OP. However, as (8)a and b show, relativization of either NP requires the SP.

(8)a. the door under which water is flowing onto the floor

(8)a. (cont.)

Ø	alt-én-dan	yer-in	üzer-in-e
	bottom-POSS-ABL	floor-GEN	top-POSS-DAT

su	ak-an	kapé
water	flow-SP	door

b. the floor onto which water is flowing under the door

kapé-nén	alt-én-dan	Ø	üzer-in-e
door-GEN	bottom-POSS-ABL		top-POSS-DAT

su	ak-an	yer
water	flow-SP	floor

It is clearly impossible to modify Underhill's proposal so that it will be compatible with these facts, and in the remainder of this paper we will demonstrate that Underhill's assumption (c), that the choice of RC participle is determined by linear position at some point in derivations, must be abandoned. We will show that the subject/non-subject distinction is indispensible in the statement of conditions for the choice of RC construction.

In particular, we claim that the primary principle governing choice of participial construction is that subjects relativize with the SP and non-subjects relativize with the OP regardless of case or position.

We will also establish a second principle which accounts for relativization of non-major constituents in the RC:

> The Mother Node Principle (MNP)
>
> If a subconstituent of a major constituent of the RC is relativized, the participle is chosen which would be appropriate for relativization of the major constituent itself. [That is, for the simple cases, if the mother node dominating the target is the subject of the RC, the SP is chosen; otherwise, the OP is chosen.]

2. Relativization of Subconstituents

2.1 We noted earlier that relativization of a genitive NP attached to a subject is done with the SP. These cases are correctly accounted for by Underhill's proposal since the target is sentence-initial and caseless at the time of RC formation.

However, his proposal cannot account for relativization of the genitive NP adamín in (9). Notice that it is attached to an indefinite subject which has undergone shift to immediate pre-verbal position. Hence at the time of relativization, this NP is not clause-initial and Underhill must predict the OP.

(9) One of the man's snakes ate the squash.
Kabağ-í adam-ín bir yílan-í ye-di.
squash-ACC man-GEN a snake-POSS eat-PAST

However, as we see in (10), the OP is impossible.

(10) the man one of whose snakes ate the squash
a. kabağ-í Ø bir yílan-í yi-yen adam
squash-ACC a snake-POSS eat-SP man

(10)b. *Kabağ-á ∅ bir yálan-ánán
squash-ACC a snake-POSS-GEN
ye-diğ-i adam
eat-OP-POSS man

The MNP correctly accounts for use of the SP here since the genitive target is a subconstituent of a major constituent functioning as subject of the RC.

In (11) below, we see a genitive NP attached to a non-subject in non-clause-initial position.

(11) The snake ate the man's squash.
Yálan adam-án kabağ-án-á ye-di.
snake man-GEN squash-POSS-ACC eat-PAST

This NP may be relativized and the result, which is consistent with Underhill's proposal, is the OP as seen in (12).

(12) the man whose squash the snake ate.
a. yálan-án ∅ kabağ-án-á ye-diğ-i
snake-GEN squash-POSS-ACC eat-OP-POSS
adam
man

b. *yálan ∅ kabağ-án-á yi-yen adam
snake squash-POSS-ACC eat-SP man

But now consider what happens if the subject of a sentence like (11) is indefinite, as in (13). The subject shifts to immediate pre-verbal position, exposing the genitive NP in initial position.

(13) A snake ate the man's squash.
Adam-án kabağ-án-á bir yálan ye-di.
man-GEN squash-POSS-ACC a snake eat-PAST

According to Underhill's proposal, we should expect relativization of the genitive NP adamɨn in sentences like this to be done with the SP. As shown in (14), it is not: the genitive NP attached to a non-subject in a transitive construction relativizes with the OP. This result is again consistent with the MNP.

(14) the man whose squash a snake ate

a. Ø kabağ-ɨn-ɨ bir yɨlan-ɨn
squash-POSS-ACC a snake-GEN

ye-diğ-i adam.
eat-OP-POSS man

b. *Ø kabağ-ɨn-ɨ bir yɨlan yi-yen adam
squash-POSS-ACC a snake eat-SP man

We conclude that in the case of genitive targets in general ~~that~~ the position of the target is irrelevant in choosing the RC participle. What is relevant is whether the NP to which the target is attached is a subject or non-subject in the RC.

2.2 We will now show that the subject/non-subject distinction is also crucial in predicting RC participles when the target of relativization is within a clause embedded in the RC.

Consider example (15), which is a sentence with a sentential subject:

(15) That the snake ate the squash is doubtful.
Yɨlan-ɨn kabağ-ɨ ye-diğ-i şüpheli
snake-GEN squash-ACC eat-PART-POSS doubtful

Subordinate clauses in Turkish are participial;[3] thus, the subject of the sentential subject is marked genitive and a participial suffix appears on the verb, followed by the possessive marker, which agrees in person and number with the subject.

Sentential subjects in SOV languages are not extraction islands, and the NP's in them are accessible to relativization. Consider, then, relativization of *yılan*, the subject of the sentential subject in (15). Underhill's proposal correctly predicts SP as in (16).

(16) the snake which it is doubtful ate the squash

a. Ø kabağ-ı   ye-diğ-i   şüpheli
   squash-ACC eat-PART-POSS doubtful

ol-an yılan
be-SP snake

b. *[OP]

His proposal further predicts that the non-subject *kabağı* will be relativized with the OP since it is non-initial and case-marked. The MNP, on the other hand, claims that *kabağı* will be relativized with the SP since it is part of a major constituent functioning as subject of the RC. As we see in (17), the MNP makes the correct prediction and Underhill's proposal makes the wrong one: relativization of *kabağı* is done with the SP.

(17) the squash which it is doubtful the snake ate

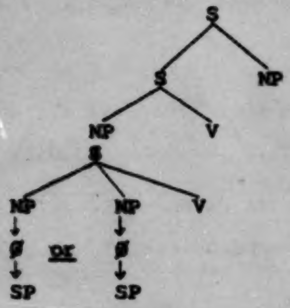
a.

yálan-án	Ø	ye-diğ-i	şüpheli
snake-GEN		eat-PART-POSS	doubtful

ol-an	kabak
be-SP	squash

b. *[OP]

In fact, it is the case that any NP in a sentential subject, regardless of its case or position, is relativized with the SP. This is illustrated below.



It is clear once again that no movement hypothesis can save Underhill's proposal. All the NP's in (15) are definite so the rule of Indefinite Movement cannot be involved.

In the following sections we examine several cases which do not serve to distinguish the two proposals, simply to show that the MNP continues to make the right predictions. We consider it established that Underhill's proposal is basically wrong and that the choice of RC participle is determined by a principle referring to hierarchical structure.

2.3 In this section we show that the MNP correctly accounts for relativization into sentential objects. Consider the sentence in (18), which contains an object clause marked in the by now familiar manner.

(18) Hasan believes that the snake ate the squash.

Hasan	yálan-án	kabağ-á	ye-diğ-in-i
"	snake-GEN	squash-ACC	eat-PART+POSS-ACC
san-áyor.			
believe-PRES			

As we see in (19), relativization of the subject of the sentential object is accomplished with the OP.

(19) the snake that Hasan believes ate the squash

a.

Hasan-án	yálan-án	ø	ye-diğ-in-i
" -GEN	snake-GEN		eat-PART-POSS-ACC
san-dáğ-á	kabak		
believe-OP-POSS	squash		

b. *[SP]

In (20), a non-subject in the sentential object is relativized and the OP again results.

(20) the squash that Hasan believes the snake ate

a.

Hasan-án	yálan-án	ø	ye-diğ-in-i
" -GEN	snake-GEN		eat-PART-POSS-ACC
san-dáğ-á	kabak		
believe-OP-POSS	squash		

b. *[SP]

The generalization is exceptionless: relativization of anything in a sentential object requires the OP.

A further comment about relativization into sentential objects is in order. Recall the facts about relativization into sentences like (21) which contain an indefinite subject shifted to immediate pre-verbal position and an oblique phrase exposed in initial position. We saw that relativization of the genitive NP in such cases requires the SP, as shown in (22).

(21) Water is flowing under the door.

Kapá-nán	alt-án-dan	su	ak-áyor.
door-GEN	bottom-POSS-ABL	water	flow-PRES

(22) the doorthat water is flowing under

a.

Ø	alt-án-dan	su	ak-an	kapá
	bottom-POSS-ABL	water	flow-SP	door

b. *[OP]

If the MNP is correct, then it should be the case that when (21) is embedded as a sentential object, relativization of the genitive NP kapánán should not be done with the SP but with the OP. This is exactly what happens: a RC formed on sentence (23) below with kapánán as target is grammatical only with the OP as we see in (24).

(23) I said that water is flowing under the door.

(23) (cont.)

Kapá-nán	alt-án-dan	su
door-GEN	bottom-POSS-ABL	water

ak-tág-án-á	söyle-dim.
flow-PART-POSS-ACC	say-PAST-1

(24) the door that I said water is flowing under

a.	Ø	alt-án-dan	su	ak-tág-án-á
		bottom-POSS-ABL	water	flow-PART-POSS-ACC

söyle-diğ-im	kapá
say-OP-POSS	door

b. *[SP]

The MNP makes the correct prediction in all cases.

2.4 For a final test of the MNP, we experimented with relativization into adverbial clauses like the one in (25) and appositive clauses like the one in (26).

(25) We were sad because the man died.

Biz	adam	öl-duğ-ü	için	üzül-dük.
we	man	die-PART-POSS	because	sad-PAST-1p

(26) I believe the rumor that the man ate the eggplant.

Ben	adam-án	patlácan-á	ye-diğ-i
I	man-GEN	eggplant-ACC	eat-PART-POSS

söylentisin-e	inan-áyor-um.
rumor-DAT	believe-PRES-1

We found, as expected, that NP's in adverbial clauses[4] are relativized with the OP as in (27).

(27) the man who we were sad because (he) died

biz-im	Ø	öl-düğ-ü	için	üzül-düğ-ümüz
we-GEN		die-PART-POSS	because	sad-OP-POSS

(27) (cont.)

adam
man

b. *[SP]

NP's in appositive clauses which function as non-subjects in the RC relativize with the OP even when the target is itself a subject NP as in (28).

(28) the man who I believe the rumor that (he) ate the eggplant

a. ben-im ∅ patlácan-á yе-diğ-i
I-GEN eggplant-ACC eat-PART-POSS

söylentisin-e inan-dáğ-ám adam
rumor-DAT believe-OP-POSS man

b. *[SP]

The NSP appears to be exceptionless.

3. Relativization into Subjectless Clauses

There exists a class of Turkish sentences which lack subjects entirely. These are impersonal passives like the one given in (29), the source of which is the active intransitive sentence given in (30).

(29) One exits to the street by this door.
Bu kapá-dan sokağ-a çák-ál-ár.
this door-ABL street-DAT exit-PASS-AOR

(30) Pro bu kapá-dan sokağ-a çák-ar.
this door-ABL street-DAT exit-AOR

Not only is there no direct object in (30) but there is also no reason to believe that any of the oblique objects in that sentence have become the derived subject of (20).

Breckenridge (1975) argues that impersonal passive sentences involve application of passive without promotion of anything to subject status. Her arguments are straightforward: given any discoverable tests of subjecthood in Turkish, NP's in impersonal passives don't pass them. They don't undergo subject-to-object raising, they don't trigger verb agreement, they don't lack overt case-marking, and they can't be deleted by Equi.[5]

When we consider relativization of targets in impersonal passives, we find that no matter what constituent is relativized, only the SP is possible. Thus, the ablative NP kapádan in (29) relativizes with the SP and so does the dative NP sokağa.

(31) the door that one exits to the street by

a.	ø	sokağ-a	çák-ál-an	kapá
		street-DAT	exit-PASS-SP	door

b. *[OP]

(32) the street which one exits to by this door

a.	bu	kapá-dan	ø	çák-ál-an	sokak
	this	door-ABL		exit-PASS-SP	street

b. *[OP]

It appears that we need to state the following additional principle:

> The No-Subject Principle (NSP)
>
> If there is no subject in the RC at the time of RC formation, the OP construction is impossible and only the SP construction is chosen.

4. Relativization into Clauses with Indefinite Subjects

At this point, we reconsider sentences like (5), repeated below, which contain shifted indefinite subjects and oblique phrases in initial position.

(5) Water is flowing under the door.

Kapı-nın	alt-ın-dan	su	ak-ıyor.
door-GEN	bottom-POSS-ABL	water	flow-PRES

As we pointed out in Section 1, the genitive NP kapının is relativized with the SP. This requires explanation since the genitive is part of a non-subject phrase and in general non-subjects and anything in them relativize with the OP. Underhill's proposal was designed to account for this but we have had to reject that proposal.

In this section, we will examine relativization into such constructions more carefully, and show that in general no NP in an indefinite-subject sentence relativizes with the OP. The situation is thus parallel to that in impersonal passive constructions where there is no subject and the NSP applies. We will propose that the same principle applies in the cases discussed here because the indefinite subjects in these sentences have undergone a demotion process which leaves the RC subjectless at the point when RC formation applies.

First note that, contrary to Underhill's assumptions, it is not only genitive targets in such constructions which relativize with the SP:[6]

(33) an airplane on which fire broke out

yangán çák-an bir uçak
fire break out-SP a plane

(34) the village to which electricity is being brought

elektrik getir-il-en köy
electricity bring-PASS-SP village

Further, recall that when there are two oblique phrases in an indefinite-subject construction, the SP is used no matter which contains the target of relativization:

(7) Water is flowing under the door onto the floor.

Kapá-nán alt-án-dan yer-in
door-GEN bottom-POSS-ABL floor-GEN

üzer-in-e su ak-áyor.
top-POSS-DAT water flow-PRES

(8)a. the door under which water is flowing onto the floor

Ø alt-án-dan yer-in üzer-in-e
bottom-POSS-ABL floor-GEN top-POSS-DAT

su ak-an kapá
water flow-SP door

(8)b. the floor onto which water is flowing
under the door

kapá-nán alt-án-dan ø üzer-in-e
door-GEN bottom-POSS-ABL top-POSS-DAT

su ak-an yer
water flow-SP floor

In fact, no matter what is relativized out of a clause with an indefinite subject, the RC is constructed with the SP.

We have shown that it is impossible to account for these facts with a principle depending on linear position; we must look for another way of relating the indefiniteness of the subject to the choice of RC participle when some non-subject is relativized. Our proposal is that the indefinite subjects in these sentences undergo a demotion[9] which has the effect of rendering the sentence subjectless. Then the No-Subject Principle accounts straightforwardly for the appearance of the SP in relativizations out of such clauses.

The existence of this demotion process is justified independently in Knecht (1976), and in Hankamer and Knecht (forthcoming). We do not have the space here to reproduce those arguments, nor to discuss the nature of this demotion process in detail. We confine ourselves to pointing out that, contrary to Underhill's assumptions, the process occurs in transitive sentences as well as intransitive ones:

(35) A bee stung the man's daughter.
adam-ín kíz-ín-í arí sok-tu.
man-GEN daughter-POSS-ACC bee sting-PAST

We find that relativization in sentences like this results in the SP, as in (36):

(36) the man whose daughter a bee stung
a. ∅ kíz-ín-í arí sok-an adam
daughter-POSS-ACC bee sting-SP man
b. *[OP]

In these examples, as in examples like (5), we propose that the subject has not only moved, but has been demoted from subjecthood, and that the sentences are subjectless at the time of RC formation.

We thus suggest that Underhill was essentially correct in proposing that something happens to indefinite subjects in such cases which allows other constituents to undergo SP relativization. He was mistaken in taking the crucial factor to be linear position.

5. In conclusion, we have argued that the subject/ non-subject distinction is essential in determining which participial construction results when a major constituent of the RC is relativized. Specifically, we get the SP when a subject is relativized and we get the OP when a non-subject is relativized and and the RC contains a subject. If there is no subject in the RC, the SP is required.

Additionally, we have shown that the MNP is exceptionless. Subconstituents invariably relativize with the participial construction appropriate for relativization of the major constituent which contains them.

We have demonstrated conclusively that the choice of RC participle in Turkish cannot be determined exclusively by reference to the linear position (and case-marking) of the target. The MNP requires reference to hierarchical relations in the relative clause structure, and the NSP refers crucially to the absence of a subject in the RC at the time of RC formation. We conclude that the notion 'subject', however defined, is crucial to the determination of relative clause participles in Turkish.

Footnotes

1. In accord with standard practice in the citation of Turkish suffixes, we use capital letters to represent segments which vary according to regular phonological alternations.

2. These assumptions certainly represent an oversimplification, for the position of indefinite NP's in Turkish sentences is dependent on several factors, and their distribution is too complex to be accounted for under Underhill's assumption of one obligatory indefinite movement rule. We do not take up these complications here, because to do so would only detract from the clarity of the exposition; they are examined in some detail in Hankamer and Knecht (forthcoming).

3. With two exceptions: a "bare-complement" type which simply embeds a finite clause as a complement to certain verbs; and the ki-cclause construction which is borrowed from Persian, where a finite clause is introduced by the complementizer ki. Neither of these constructions will appear in the discussion here.

4. Some adverbial clauses are extraction islands in Turkish and others are not (see Tato 1974). We have of course restricted our attention to the ones which allow extraction.

5. Another argument that the oblique NP's in impersonal passive constructions are not subjects is based on an observation brought forth in Knecht (1976): That the rule of comparative deletion in Turkish is constrained so that it cannot take a subject as target. This rule can delete the oblique NP's in impersonal passive constructions, indicating once more that they are not subjects.

6. Several examples of this kind are given in Lewis(1967), pp. 262-263, from which these are paraphrased. Underhill was aware of the existence of these examples, but dismissed them as "proverbial". We have found, however, that our informants regard them as perfectly normal, and that (when the subjects are interpreted as indefinite) only the SP and never the OP construction is possible.

7. This term is due to Postal & Perlmutter (cf Postal and Perlmutter (forthcoming)), and refers to the loss of status in a hierarchy of grammatical relations.

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Prepositional Phrase Extraposition

Bruce Hayes

1. The Existence of the Rule. In this paper it will be assumed that there exists in English a rule of Prepositional Phrase Extraposition, henceforth to be abbreviated as PPEX. The effect of PPEX is to move PP's which are dominated by the node NP rightward to the end of their clauses. PPEX operates on sentences such as (1-3)a to produce (1-3)b:

(1)a. A book about the lexicalist hypothesis was sitting on the table.
b. A book was sitting on the table about the lexicalist hypothesis.

(2)a. A riot over Ky's appearance occurred in Ithaca last year.
b. A riot occurred in Ithaca last year over Ky's appearance.

(3)a. A lecture on musical syntax was delivered by Bernstein two years ago.
b. A lecture was delivered by Bernstein two years ago on musical syntax.

The motivation for PPEX consists in the fact that the PP's found at the end of sentences like (1-3)b may only occur in that position if they can also occur to the immediate right of the subject of the sentence.[1] This point is illustrated by the following sentences, in which the subject has been changed so that it is unable to occur with the PP following it:

(4)a.*A shovel about the lexicalist hypothesis was sitting on the table.
b.*A shovel was sitting on the table about the lexicalist hypothesis.

(5)a.*An event over Ky's appearance occurred in Ithaca last year.
b.*An event occurred in Ithaca last year over Ky's appearance.

(6)a.*A package on musical syntax was delivered by Bernstein two years ago.
b.*A package was delivered by Bernstein two years ago on musical syntax.

If we have a rule of PPEX, the ungrammaticality of (4-6)b will be accounted for, because their source sentences, (4-6)a, are also ungrammatical.

It is possible, however, that thereis no rule of PPEX, and that sentences such as (1-3)b are accounted for instead by an interpretive rule. Under this proposal, the PP's found at the end of sentences (1-3)b would be generated in this position by the base rules. The proposed interpretive rule would then examine the NP's of the sentence to find one which the PP could apply to. If no such NP is found, then the sentence is ungrammatical.

Presently, I have no evidence to decide between the two theories. For purposes of exposition only, I will refer to PPEX as a syntactic rather than an interpretive rule, assuming that any constraint found which blocks the application of PPEX may alternatively be regarded as a constraint preventing the interpretive rule from linking the clause-final PP to a head noun.

It has been suggested by Jorge Hankamer that there is no rule of PPEX, and that (1-3)b are instead generated by the application of Relative Clause Extraposition (often called Extraposition from NP), followed by the operation of Whiz-Deletion, as in the following example:

(7)a. A book which was about primeval echinoderms was read by the class.
b. A book was read by the class which was about primeval echinoderms.

c. A book was read by the class about primeval echinoderms.

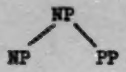
If this analysis is correct, then it must be the case that all PP's which may occur in extraposed position must also be able to occur in relative clauses of the form $\left\{\begin{matrix}\text{who}\\ \text{which}\end{matrix}\right\}$ be PP. But as the following examples show, this is not true:

(8)a. A riot occurred last week over Hall's incompetence.
b.?A riot which was over Hall's incompetence occurred last week.

(9)a. A man was seen in the Square with six-inch fangs.
b.*A man who was with six-inch fangs was seen in the Square.

These sentences show that there are at least some instances in which a separate rule of PPEX is required. They do not show, of course, that the derivation suggested by Hankamer may never occur.

2. The Subject of the Source Sentence. In English, there are an enormous number of expressions which have the structure



and thus may potentially be operated on by PPEX. Not all of these expressions, however, allow PPEX to work, as the following examples show:

(10)a. A bottle of beer is sitting on the table.
b.*A bottle is sitting on the table of beer.

(11)a. An exit from this building is needed.
b.*An exit is needed from this building.

(12)a. An event of tremendous importance occurred last week.
b.??An event occurred last week of tremendous importance.

(13)a. Wines of Bordeaux were served at the party.

b. *Wines were served at the party of Bordeaux.

Some expressions which do allow PPEX to operate on them are attested in the examples below:

(14)a. Proposals for qualifying exams were made last week.
b. Proposals were made last week for qualifying exams.

(15)a. A man with six-inch fangs was seen in the Square.
b. A man was seen in the Square with six-inch fangs.

(16)a. Atrocities against civilians were committed last week.
b. Atrocities were committed last week against civilians.

(17)a. A picture of Edward Sapir hangs on the wall.
b. A picture hangs on the wall of Edward Sapir.

a book about the lexicalist hypothesis
(found in (1))
a riot over Ky's appearance
(found in (2))
a lecture on musical syntax
(found in (3))

I have not yet found a means of characterizing which NP-PP combinations do not allow PPEX to operate. It will be important later, however, to bear in mind that such expressions do exist, because the use of them might interfere when other phenomena involving PPEX are tested. For example, I will later claim that the predicate was read by the class always allows PPEX to operate across it, as it does in producing sentences such as (19):

(19)a. A book about the early therapsids was read by the class.
b. A book was read by the class about the early therapsids.

A reader might object to this claim by citing the following example, in which PPEX may not operate even though the predicate is the same as in (19):

(20)a. A book of stories was read by the class.
b.??A book was read by the class of stories.

The problem with this objection is that the expression *a book of stories* may never be separated by PPEX, no matter what the predicate is:

(21)a.*A book is sitting on the table of stories.
b.*A book is circulating in the department of stories.
c.*A book is coming into prominence of stories.
d.*A book was reviewed by Auberon last week of stories.

A book about the early therapsids, on the other hand, may be separated by PPEX with many predicates in addition to *was read by the class*:

(22)a. A book is sitting on the table about the early therapsids.
b. A book is circulating in the department about the early therapsids.
c. A book is coming into prominence about the early therapsids.
d. A book was reviewed by Auberon last week about the early therapsids.

Furthermore, there are other NP-PP combinations which PPEX may separate when the predicate is *was read by the class*:

(23)a. An article was read by the class on pre-Cambrian algae.
b. Studies were read by the class in acoustic phonetics.
c. A monograph was read by the class about the lesser uintatheres.

These facts all indicate that the reason why (20)b is ungrammatical is not that its predicate may not allow PPEX, but rather that PPEX cannot separate the NP and PP of its subject.

3. PPEX with Definite Subjects. In the great majority of cases, PPEX is unable to operate if the subject of the source sentence is definite. This is illustrated by the following sentences, which are the same as

(1-3) (to which PPEX can apply), except that their subjects have been made definite:

(24)a. The book about the lexicalist hypothesis was sitting on the table.
b.*The book was sitting on the table about the lexicalist hypothesis.

(25)a. The riot over Ky's appearance occurred in Ithaca last year.
b.*The riot occurred in Ithaca last year over Ky's appearance.

(26)a. The lecture on musical syntax was delivered by Bernstein two years ago.
b.*The lecture was delivered by Bernstein two years ago on musical syntax.

There are a few cases, however, in which PPEX is not blocked:

(27)a. The key to the front door was found last week.
b. The key was found last week to the front door.

(28)a. The answer to your question has been found.
b. The answer has been found to your question.

(29)a. The formula for this sugar has been discovered.
b. The formula has been discovered for this sugar.

The three sentences above are subject to dialect variation, with some speakers finding them deviant. I will discuss here only the dialect which finds them acceptable. The problem to be dealt with is why the definite subjects of sentences (27-29) behave in the same manner as indefinite subjects—that is, in allowing PPEX. The explanation which follows was suggested to me by Judith Aissen.

Consider first the conditions which must hold if the subject of any sentence is to be definite.

(30) The book about the lexicalist hypothesis was sitting on the

table.
(31) The riot over Ky's appearance occurred in Ithaca last year.
(32) The lecture on musical syntax was delivered by Bernstein two years ago.

Sentences (30-32) are appropriate utterances only if the person listening to them knows in advance (either from prior discourse or from his own knowledge) what the referent of the book, the riot, or the lecture is. More generally, all definite noun phrases may be used only to refer to things whose existence the listener is already aware of.

When the head noun is indefinite, however, this is not the case.

(33) Books about the lexicalist hypothesis were sitting on the table.
(34) A riot over Ky's appearance occurred in Ithaca last year.
(35) A lecture on musical syntax was delivered by Bernstein two years ago.

Sentences (33-35) are appropriate utterances even if the listener is not aware that the books or the riot or the lecture have existed.

Sentences (27-29), to which PPEX may apply despite their definite subjects, are repeated here for convenience:

(27)a. The key to the front door was found last week.
b. The key was found last week to the front door.

(28)a. The answer to your question has been found.
b. The answer has been found to your question.

(29)a. The formula for this sugar has been discovered.
b. The formula has been discovered for this sugar.

In these sentences, we find a strange phenomenon: they are appropriate even if the listener is unaware that the referents of the key, the answer, and the formula exist. Thus, despite their being syntactically definite, the head nouns of (27-29) behave just as if they were indefinite.

This phenomenon provides us with an explanation for why the definite subjects of sentences (27-29) allow PPEX: PPEX is blocked whenever the listener already knows that the referent of the subject exists. Excluding the special cases under discussion, all definite NP's may be used only when the listener is familiar with their referents, and thus block the application of PPEX. All indefinite NP's do not require that the listener know that their referents exist; thus the constraint does not block the application of PPEX to them. The subject NP's of sentences (27-29) behave in the same way as indefinites: since they do not require that the listener know that their referents exist, PPEX may apply to them, too.[2]

4. The Predicates Allowing PPEX. There are many sentences to which PPEX is unable to apply, even when the NP-PP combination serving as the subject normally does permit PPEX. The following are examples of such sentences.

(36)a. ?After the cops intervened, a riot over Ky's appearance broke up.
b. *After the cops intervened, a riot broke up over Ky's appearance.

(37)a. Studies in acoustic phonetics had a great influence in the 60's.
b. *Studies had a great influence in the 60's in acoustic phonetics.

(38)a. A book about social psychology is going out of style.
b. ??A book is going out of style about social psychology.

An adequate theory of PPEX will have to predict which predicates will allow it to operate and which ones will block its application. I have no such theory, but offer here a set of facts which potentially could be used in the construction of one.

What I will show here is that the set of predicates allowing PPEX is, with a number of exceptions, the same as the set of predicates which allow the rule of *There*-Insertion (hereafter to be abbreviated as TI) to operate. In order to develop a predictive theory from this observation, two things must be done: the exceptions must be accounted for, and an explanation must be provided for *why* the two sets of predicates correspond. Some effort is made here to accomplish the first of these tasks; but the latter task remains to be accomplished.

In Milsark (1974), TI sentences are organised into the following groupings on the basis of the type of predicate they have:

NP *be* PASSIVE
NP *be* PROGRESSIVE
NP V X
NP *be* ADJ
NP *be*
NP *be* LOCATIVE

Examples will be presented here in groups based on this classification.

4.1 Passive Predicates. There are many passive predicates which allow TI to apply. As the following examples show, these predicates also allow PPEX:

(39)a. A proposal for a senior thesis was made last week.
b. There was a proposal for a senior thesis made last week.
c. A proposal was made last week for a senior thesis.

(40)a. A key to the front door was found last week.
b. There was a proposal for a senior thesis made last week.
c. A proposal was made last week for a senior thesis.

(41)a. Many atrocities against civilians were committed last year.
b. There were many atrocities against civilians committed last year.

c. Many atrocities were committed last year against civilians.

(42)a. A long lecture on the greater coelacanth was presented last week.
b. There was a long lecture on the greater coelacanth presented last week.
c. A long lecture was presented last week on the greater coelacanth.

A few passive predicates may be found which produce deviant results when they occur in TI sentences. These predicates also produce bad judgments with PPEX:

(43)a. An article about the early thecodonts was intently read by the class last week.
b.??There was an article about the early thecodonts intently read by the class last week.
c.??An article was intently read by the class last week about the early thecodonts.

(44)a. A model for speech recognition was discarded last week.
b.??There was a model for speech recognition discarded last week.
c.??A model was discarded last week for speech recognition.

(45)a. A map of Luxemburg was ripped into shreds last week.
b.??There was a map of Luxemburg ripped into shreds last week.
c.??A map was ripped into shreds last week of Luxemburg.

4.2 Progressive Predicates. With most predicates in the progressive tense, TI is able to apply; in these cases, PPEX also may operate.

(46)a. A man with six-inch fangs is running around the track.
b. There is a man with six-inch fangs running around the track.
c. A man is running around the track with six-inch fangs.

(47)a. A riot over Ky's appearance is occurring outside.
b. There is a riot over Ky's appearance occurring outside.
c. A riot is occurring outside over Ky's appearance.

(48)a. A monograph about discourse-conditioned rules is circulating in the department.
b. There is a monograph about discourse-conditioned rules

circulating in the department.
c. A monograph is circulating in the department about discourse-conditioned rules.

As with passives, however, there are some progressive predicates which block TI. To an equal degree, these predicates block PPEX:

(49)a. A book about the early trilobites is going out of style.
b.??There is a book about the early trilobites going out of style.
c.??A book is going out of style about the early trilobites.

(50)a. Several proposals for qualifying exams were bothering me.
b.??There were several proposals for qualifying exams bothering me.
c.??Several proposals were bothering me for qualifying exams.

(51)a. When I got there, a riot over Ky's appearance was slowly dispersing.
b.*When I got there, there was a riot over Ky's appearance slowly dispersing.
c.*When I got there, a riot was slowly dispersing over Ky's appearance.

4.3 Verbal Predicates. Milsark divides the predicates which allow TI but lack the word be into two groups, which he designates Inside Verbal and Outside Verbal. The groups differ in where the old subject of a TI sentence containing them must end up. With Inside Verbal predicates, the old subject immediately follows the verb; with Outside Verbals, it must occur at the end of the sentence.[3] The following sentences illustrate this: -

(52)a. There began a riot out in the street.
b.*There began out in the street a riot.

(53)a. There came into the room an unhappy unicorn.
b.*There came an unhappy unicorn into the room.

Inside Verbal TI sentences may occur only with a restricted set of verbs, among them being *exist*, *begin*, and *ensue*. These verbs also allow the application of PPEX:

(54)a. A book about the Eohippus exists.
    b. There exists a book about the Eohippus.
    c. A book exists about the Eohippus.

(55)a. A riot over Ky's appearance began.
    b. There began a riot over Ky's appearance.
    c. A riot began over Ky's appearance.

(56)a. A lecture on the five-toed sloth ensued.
    b. There ensued a lecture on the five-toed sloth.
    c. A lecture ensued on the five-toed sloth.

Outside Verbal TI sentences may occur with a far wider range of predicates than Inside Verbals. Just which predicates allow Outside Verbal TI to apply is poorly understood; at present only rough semantic classifications may be made.

The first category of predicates allowing Outside Verbal TI describe the location of their old subjects, using verbs such as *lie*, *sit* and *hang*. These predicates allow PPEX to operate, too.

(57)a. A book about pleistocene edentates lay on the floor.
    b. There lay on the floor a book about pleistocene edentates.
    c. A book lay on the floor about pleistocene edentates.

(58)a. A portrait of Edward Sapir hangs on the wall.
    b. There hangs on the wall a portrait of Edward Sapir.
    c. A portrait hangs on the wall of Edward Sapir.

(59)a. A man with six-inch fangs sat in the corner.
    b. There sat in the corner a man with six-inch fangs.
    c. A man sat in the corner with six-inch fangs.

Another class of predicates allowing Outside Verbal TI has the effect of introducing the former subject onto the scene, either by describing its coming into view or its coming to the attention of the speaker. These predicates also allow PPEX to operate:

(60)a. A train with 97 boxcars appeared over the horizon.
b. There appeared over the horizon a train with 97 boxcars.
c. A train appeared over the horizon with 97 boxcars.

(61)a. A book about the Oligocene creodonts circulated in the department.
b. There circulated in the department a book about the Oligocene creodonts.
c. A book circulated in the department about the Oligocene creodonts.
(62)a. A proposal for qualifying exams has come into prominence.
b. There has come into prominence a proposal for qualifying exams.
c. A proposal has come into prominence for qualifying exams.

In contrast to this last set of predicates are those predicates which describe the former subject's "going out of view" or "going out of existence." TI is unable to apply to these predicates, a fact first noted in Borkin at al. (197?). In addition, these predicates block PPEX:[4]

(63)a. Two books about the therapod *Gorgosaurus* went out of print last year.
b.??There went out of print last year two books about the therapod *Gorgosaurus*.
c.??Two books went out of print last year about the theropod *Gorgosaurus*.

(64)a. After the cops intervened, a riot over Ky's appearance simply broke up.
b.*After the cops intervened, there simply broke up a riot over Ky's appearance.
c.*After the cops intervened, a riot simply broke up over Ky's appearance.

(65)a. A key to the front door fell into the sewer.
b.??There fell into the sewer a key to the front door.
c.??A key fell into the sewer to the front door.

Finally, there are the predicates which have direct objects: these completely block both TI and PPEX:

(66)a. A book about the carnivorous pterodactyls bothered me yesterday.
b.*There bothered me yesterday a book about the carnivorous pterodactyls.
c.*A book bothered me yesterday about the carnivorous pterodactyls.

(67)a. Studies in acoustic phonetics had a great influence in the 60's.
b.*There had a great influence in the 60's studies in acoustic phonetics.
c.*Studies had a great influence in the 60's in acoustic phonetics.

(68)a. A man with six-inch fangs hit the volleyball.
b.*There hit the volleyball a man with six-inch fangs.
c.*A man hit the volleyball with six-inch fangs. (PPEX reading)

4.4 Adjective Predicates. According to Milsark (1974), the only adjective predicates which allow TI to apply are those denoting temporary states, as opposed to permanent properties. Thus the following sentences, which contain "property" adjectives, are completely out in their TI versions. The PPEX versions are correspondingly bad.[5]

(69)a.?A book about the mesohippus was green.
b.*There was a book about the mesohippus green.
c.*A book was green about the mesohippus.

(70)a.?A lecture on the evolution of monotremes was very long.
b.*There was a lecture on the evolution of monotremes very long.
c.*A lecture was very long on the evolution of monotremes.

Even adjectives denoting temporary states produce fairly deviant results when they occur alone in the predicate. This is true both for TI and PPEX:

(71)a. ?Several books about the earlier Stegosauria were open.
b. ??There were several books about the earlier Stegosauria open.
c. ??Several books were open about the earlier Stegosauria.

(72)a. A man with six-inch fangs was sick.
b. ?There was a man with six-inch fangs sick.
c. ?A man was sick with six-inch fangs.

But when a locative expression is added to the lone adjective, the result (for both TI and PPEX) becomes near-perfect:

(73)a. A man with six-inch fangs was sick in the garden.
b. There was a man with six-inch fangs sick in the garden.
c. A man was sick in the garden with six-inch fangs.

(74)a. Several books about the earlier Stegosauria were open on the table.
b. There were several books about the earlier Stegosauria open on the table.
c. Several books were open on the table about the earlier Stegosauria.

We see in these examples that TI is highly restricted in its application to adjective predicates, but that whenever it can apply, so can PPEX.

4.5 The Predicate *be* NP. Predicates which take the form *be* NP always block both TI and PPEX completely:

(75)a. ?A man from Topeka was a Communist.
b. *There was a man from Topeka a Communist.
c. *A man was a Communist from Topeka. (PPEX reading)

(76)a. A book about early Devonian vertebrates was a success.
b. *There was a book about early Devonian vertebrates a success.
c. *A book was a success about early Devonian vertebrates. (PPEX reading)

4.6 The Predicate *be*. The predicate *be* constitutes an exception to the pattern observed so far. It may appear in TI sentences, but not PPEX sentences:

(77)a. There is a book about that subject.
b.??A book is about that subject.

(78)a. There was a riot over Ky's appearance.
b.*A riot was over Ky's appearance.

(79)a. There is an answer to your question.
b.*An answer is to your question.

The exception may be explained on the assumption that, with the predicate be, TI is obligatory. This assumption is externally motivated, since the source sentences of (77-79) are ungrammatical:

(80) *A book about that subject is.
(81) *A riot over Ky's appearance was.
(82) *An answer to your question is.

The ungrammaticality of (77-79)b is explained if TI is obligatory with the predicate be, simply because PPEX never has a chance to apply.

4.7 Locative Predicates. For many speakers, locative predicates conform to the established pattern: the application of TI or of PPEX is equally possible:

(83)a. A book about woolly mammoths is on the atble.
b. There is a book about woolly mammoths on the table.
c. A book is on the table about woolly mammoths.

(84)a. A portrait of Edward Sapir is on my wall.
b. There is a portrait of Edward Sapir on my wall.
c. A portrait is on my wall of Edward Sapir.

For some people, however, the c. versions of these sentences, in which PPEX has operated, are deviant even though the TI sentences are perfect. I can't explain why this is so, but will offer some speculation. Note that sentences (83-84)c are markedly improved for the speakers in question when their subjects are quantified by the word several:

(85) Several books are on the table about woolly mammoths.
(86) Several portraits are on my wall of Edward Sapir.

This suggests that what is blocking PPEX in (83-84)c is not just the fact that their predicates are locative, but rather some interaction of their unquantified indefinite subjects with the locative predicates. If this is the case, then locative predicates also conform to the pattern observed in allowing both TI and PPEX to operate.

4.8 Conclusion. We have seen in this section that, with a few exceptions, the predicates which allow PPEX to apply are the same as the predicates which the operation of TI. For the exceptions, there either is evidence which provides an explanation for them, or at least some evidence indicating where an explanation might be found.

Given that the correspondence exists, there are several possible reasons for why this is so. It might be that the grammar simply marks predicates with an arbitrary feature which allows PPEX and TI to apply. The correspondence may also be only a perverse coincidence. If, however, some externally motivated reason may be found for why the sets of predicates are the same, then we will have a predictive theory describing the situations in which PPEX can apply.

NOTES

1. There also exist sentences in which the NP which originally dominated the extraposed PP is not a subject:

(i) I read a book last week about the lexicalist hypothesis.

I have not yet investigated these sentences.

2. This explanation invites speculation as to why the expressions *the key to the front door*, *the answer to your question*, and *the formula for this sugar* differ from other definite NP's in not requiring that the listener be familiar with their referents. Perhaps this is due to facts about the real world: while it ordinarily is a property of front doors, questions, and sugars that they respectively have keys, answers, and formulas; it is only accidental if the lexicalist hypothesis should have a book written about it, that Ky's appearance should provoke a riot, and so on. The fact that the listener need not know in advance about the existence of *the key*, *the answer*, or *the formula* might therefore be due to the fact that the existence of those things has already been implied by the existence of the *front door*, *your question*,and *this sugar*.

3. The form of TI involving Outside Verbal predicates differs sharply in its properties from other instances of TI, and is thus probably a separate transformation. For example, it is demonstrated in Aissen (1975) that Outside Verbal TI, unlike ordinary TI, is a root transformation. In addition, Outside Verbal TI is exempt from a constraint which applies to ordinary TI, namely that the subject of the source sentence be indefinite. The following examples, found in Milsark (1974) illustrate this:

(i)a. At the meeting, there were introduced into the record all of Scrungeworth's ridiculous objections.
b.*At the meeting there were all of Scrungeworth's ridiculous objections introduced into the record.

4. This vaguely defined restriction against "going out of view" may extend beyond Outside Verbal TI. Note that some of the passive and progressive predicates cited above which block TI and PPEX also describe "going out of view" in some sense:

was discarded last week
was ripped into shreds last week
is going out of style
was slowly dispersing

5. For some speakers, however, the judgments of the source sentence versions of (69-70) are nearly as bad as the judgments for the TI and PPEX versions. This means that, for these speakers, the hypothesis that TI and PPEX produce results of equal grammaticality cannot be tested in these cases, since we don't know whether the ungrammaticality of (69-70)b,c results from the badness of their sources or from the application of TI and PPEX.

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RAISING IN MODERN GREEK: A COPYING PROCESS?*

Brian Joseph

1. Introduction

In Modern Greek, there exist surface alternates of the following sort:

(1) a. θelo na figi o yanis
want-1sg ptl. leave-3sg-SUBJ John-NOM
'I want John to leave'

b. θelo ton yani na figi
John-ACC
'I want John to leave'

(2) a. θeorc pos o yanis ine eksipnos
consider-1sg COMP NOM be-3sg smart-NOM
'I consider John to be smart'

b. θeoro ton yani pos ine eksipnos
ACC
'I consider John to be smart'

where the (a) sentences have an embedded clause with a fully-specified NP subject in the nominative case, and the (b) sentences have an NP, corresponding to the embedded subject of the (a) sentences, which is in the accusative case, and has moved to the left of the verbal particle na or the complementizer pos. Each sentence pair has the same basic meaning, perhaps differing only in some ill-defined way as to emphasis or focus. Moreover, with respect to similarities between the (a) and the (b) sentences, it is important to note that there is no difference, morphological or otherwise, in their respective embedded verbs--in each case, the verb is fully finite, marked for both person and number. Thus, the case-marking and the word-order are the only superficial differences between the (a) and the (b) sentences.

Nonetheless, it can be shown that these differences are not merely due to idiosyncrasies of Greek case-marking and/or word-order, but rather that they are indicative of the fact that a rule has applied in the derivation of the (b) sentences which has not applied in the derivation of the (a) sentences. This rule is the rule of Subject-to-Object-Raising, by which a subject NP[1] in a lower clause becomes the object in a higher clause. The concerns of this paper, then, will be two-fold. First, arguments supporting this proposed Raising analysis for the (b) sentences will be given. Once this analysis has been established, the nature of the Raising process will be investigated, with the purpose of determining whether the rule operates by removing the lower subject from its clause, leaving behind a "punctured" clause-remnant, or by copying that NP out of its clause, so that the embedded clause is still intact after Raising has taken place. This last question is not as trivial as it might seem, for Greek independently has a rule of Subject-Pronoun-Drop, so that under normal conditions, a copy left by the raised subject would not get a chance to surface as such. More will be said later about Subject-Pronoun-Drop.

2.0 Arguments for Raising

In order to prove that the rule of Raising is operative in the derivation of the (b) sentences above, two types of evidence are necessary.[2] First, it must be shown that in the structure represented by the (b) sentences, the accusative NP is not the underlying object of the matrix verb, as it would be if the verb were subcategorized for two NP's, analogous to the English verb *persuade*. This type of structure will be referred to throughout as an Object-EQUI subcategorization. Second, it must be shown that the accusative NP is in fact a member of the upper clause.

2.1: The Greek verb *piΘo* 'persuade' must have an Object-EQUI subcategorization because of sentences such as the following:

(3) episa ton yani pos i maria agapai ton yorgo
persuaded-1sg ACC CONP Mary-NOM love-3sg George-ACC
'I persuaded John that Mary loves George'

Thus, it is instructive to compare its properties with those of the putative Raising verbs *Θelo* 'want' and *Θeoro* 'consider'.[3] In particular, there are several differences in behavior between *Θelo* and *Θeoro* on the one hand, and *piΘo* on the other, differences which argue against an Object-EQUI subcategorization on *Θelo* and *Θeoro*.

2.1.1: For one thing, there is synonymy between a sentence whose clause embedded under *Θelo* is active and the corresponding one whose embedded clause is passive:

(4) a. Θelo ton yani na eksetasΘi apo ton yatro
John-ACC examine-PASS-3sg by the doctor
'I want John to be examined by the doctor'

= b. Θelo ton yatro na eksetasi ton yani
the doctor-ACC examine-ACT-3sg John-ACC

'I want the doctor to examine John'

The only difference between (4a) and (4b) is whatever difference of emphasis there is between active and passive sentences in general--both refer to the same event which is desired to take place. The same holds for θeoro, for (5a) with an active complement is synonymous with (5b) with a passive complement (consisting here of the copula plus the past passive participle):

(5) a. θeoro ton petro pos eklepse afto ton skilo
Peter-ACC COMP stole-3sg this-the-dog-ACC
'I consider Peter to have stolen this dog'

= b. θeoro afto ton skilo pos ine klemenos apo ton petro
be-3sg stolen-NOM by
'I consider this dog to have been stolen by Peter'

Crucially, this is not the case with the verb piθo 'persuade':

(6) a. episa ton yatro na eksetasi ton yani
persuaded-1sg doctor examine-3sg John-ACC
'I persuaded the doctor to examine John'

≠ b. episa ton yani na eksetasθi apo ton yatro
examine-PASS-3sg
'I persuaded John to be examined by the doctor'.

This is exactly the result that would be expected if θelo and θeoro did not govern underlying Object-EQUI subcategorization, but rather were subcategorized for only a sentential NP complement, and would constitute an explanatory problem if these verbs governed two NP's underlyingly, since (4a) and (4b), as well as (5a) and (5b), would have different deep structures, but would have the same basic meaning. The accusative NP in (1b) and (2b) therefore cannot be underlyingly an object of the matrix verb, and consequently must gain that status in the course of the derivation.

2.1.2: Furthermore, for at least some speakers of Greek, an idiom consisting of a verb plus an accusative object can be passivized and embedded under θelo in the construction of (1b) and still preserve the idiomatic reading. This is impossible with piθo, where such a sentence is ungrammatical. Thus in the phrase ðino ksilo se kapyo, literally "I give wood to someone" but idiomatically 'I spank someone', ksilo 'wood' can be passivized, and the whole phrase embedded under θelo with the idiomatic reading intact:

(7) θelo ksilo na tu doθi
him-GEN give-PASS-3sg
'I want him to be spanked' (Idiomatic)

The corresponding piθo sentence is ungrammatical in the idiomatic reading:[4]

(8) *episa ksilo na tu doθi
'I persuaded him to be spanked'.

It would be impossible for θelo to have Object-EQUI subcategorization and still preserve the idiomatic reading of this phrase, under the reasonable assumption for semantic interpretation that only the parts of idioms that are together in deep structure will be interpreted idiomatically. Even more importantly, ksilo here has no reference, and therefore could not trigger EQUI, whose primary condition for applicability is co-reference.[5] The facts in (7) are exactly what would be expected if θelo had only a sentence as complement in underlying structure.

Essentially the same argument can be constructed on the basis of subject idioms such as *ksilo pefti (se kapyo)*, literally "wood falls (on someone)" but idiomatically 'someone gets hurt/suffers (in a fight)'. As expected, the idiomatic reading is preserved when this expression is embedded under *θelo* and *θeoro*, but crucially, not when under *piθo*:

(9) a. θelo ksilo na pesi se afton
fall-3sg on him-ACC
'I want him to suffer (in the fight)' (Idiomatic)
b. θeoro ksilo na exi pesi se afton
have-AUX fallen
'I consider him to have suffered (in the fight)'

(10) *episa ksilo na pesi se afton
'I persuaded him to get hurt (in the fight)'

Again, these facts follow if *θelo* and *θeoro* do not have Object-EQUI subcategorizations, but rather are subcategorized for a bare sentential complement in underlying structure.

2.1.3: Finally, given the evidence of the preceding sections, there is another argument against taking *θelo* and *θeoro* to be Object-EQUI verbs. If these verbs were subcategorized for the Object-EQUI construction, then heavy restrictions would have to be put on the appearence of this sub-categorization. In particular, sentences of the type *θelo/θeoro* NP_i *COMP* NP_j *VP*, would have to be prevented from surfacing: that is, when such a construction occurred underlyingly, the conditions for Object-EQUI would have to be met obligatorily to avoid such sentences as:

(11) *θelo ton yani na figi i maria

John-ACC   leave-3sg Mary-ACC
'*I want John that Mary leave'.

Whereas there are verbs that do require such restrictions, for example, *anaŋgazo* 'force', it is important to note that these verbs do not behave like *θelo* and *θeoro* with respect to the properties mentioned in the previous sections. Thus, while the need for a restriction on *anaŋgazo* is principled, the need for a similar restriction on *θelo*, *θeoro*, and any other verbs exhibiting similar properties is purely an artifact of the decision to regard these verbs as being able to govern *NP + S* complements underlying. Thus it may be concluded that *θelo* and *θeoro* do not have Object-EQUI subcategorization underlyingly, but rather have only a bare sentence as their object complement in deep structure.

2.2: The evidence that the accusative NP in (1b) and (2b) is in fact a member of the upper clause comes from two sources, Reflexivization facts, and the allowable readings for sentential adverbs.

2.2.1: Reflexivization in Greek involves the use of the nominal form *ton eafton*, literally "the self", plus a possessive pronoun coreferent with the antecedent--although this type of reflexivization is somewhat elevated stylistically, and is representative of more educated speakers, nonetheless it is a part of current colloquial Greek.[6] The process which introduces this reflexive must be clause-bounded, as indicated by the following sentences:

(12) a. *ego nomizo pos ðen agapai ton eafton mu
I think-1sg COMP not love-3sg the-self-of me
'*I think that she doesn't love myself'

b. ego nomizo pos ðen me agapai
me-ACC-CLIT
'I think that she doesn't love me'.

In (12), we see that the presence of a clause-boundary between two coreferent NP's requires that the second NP be a non-reflexive form, under normal discourse conditions.[7] We shall refer to this Reflexivization process as Ordinary Reflexivization, a process which is restricted to operating within the limits of the simple clause.

The evidence for Raising comes from the fact that the accusative NP in (1b) and (2b) may be the reflexive form, ton eafton, when coreferent with the matrix subject:

(13) a. Θelo ton eafton mu na petixi
want-1sg the-self-of me succeed-3sg[8]
'I want myself to succeed'

b. Θeoro ton eafton mu pos ine eksipnos
consider-1sg be-3sg smart-NOM.
'I consider myself to be smart'.

If the accusative NP in the putative Raising sentences were not a member of the upper clause, then Ordinary Reflexivization would have to be needlessly complicated to account for these cases. Raising therefore has indeed made the downstairs NP a member of the upper clause.

2.2.2: The argument from the reading of adverbs is based on the following sentences:

(14) a. iΘela o yanis fonakta na ðiavasi to vivlio
wanted-1sg NOM loudly read-3sg the book

'I wanted John to read the book loudly'

b. iθela ton yani fonakta na δiavasi to vivlio
John-ACC read-3sg
'(I made it known) loudly (that) I wanted John to read the book'

(15) a. θeoro o yanis δistixos ine kakurgos
consider-1sg NOM unfortunately be-3sg criminal
'I consider John to be, unfortunately, a criminal'

b. θeoro ton yani δistixos pos ine kakurgos
John-ACC COMP
'Unfortunately, I consider John to be a criminal'

The (a) and (b) sentences in (14) and (15) differ as to what the adverb modifies. In (14a) and (15a), the adverb modifies the embedded verb[9], while in (14b) and (15b), it describes the manner in which the action of the main verb is carried out.

Given these contrasts, there is an argument for the accusative NP ton yani in (14b) and (15b) being in the upper clause based on the following principle, formulated in Postal (1974)[10]:

(16) A "sentential" adverb cannot be inserted in a complement clause.

This principle allows "insertion of main clause 'sentential' adverbs between the immediate constituents of the main clause, but not in a position inside complement sentences" (Postal (1974), p. 147). Assuming this principle to be applicable to languages other than English,[11] the facts of (14) and (15) can be accounted for straight-forwardly if the accusative NP's in the putative Raising sentences are members of the upper clause. That is, the contrasts of (14) and (15) are explicable if the operation of Raising changes the clause-boundaries, so that the adverb's position between the accusative NP and the complementizer *pos* or the particle *na* is to the left of the embedded clause-boundary. This presupposes that in sentences such as (14a), where the nominative NP is to the left of the particle *na*, it is still under the domination of a sentence-node. These contrasts in adverbial reading would be difficult to account for if Raising did not change the clause boundaries. In that case, one might try to base these contrasts on the case-marking of the adjacent NP (that being the only superficial difference between (14a) and (14b), for instance), but that is the sort of analysis that cries for explanation, for there is no reason to presume that case-marking on an adjacent noun should have any effect at all on adverb interpretation.

However, if we take the change in case-marking to be a reflection of a structural change in the position of the embedded clause-boundary, then we can easily account for the difference in adverbial reading, because in the (a) sentences, the adverb will be in the lower clause, while in the (b) sentences, it will be in the upper clause. In this regard, it should be noted that the case-marking of accusative on the putative raised NP is exactly what would be expected for a direct object of a verb, whereas if that NP were not the object of the matrix verb, the case-marking assigned to it would be anomalous. Thus, we may conclude that sentences of type of (1b) and (2b) are in fact derived by a rule of Raising which makes a subject of a subordinate clause into an object of a superordinate clause.

3.0 The Nature of the Raising Process

Given, then, that such a rule of Raising does exist in Greek, there are some properties of the Raising sentences in particular and Greek syntax in general which make it possible to consider the following question concerning the nature of this process--is the Raising accomplished by the actual removal of the subject NP of the lower clause or by the copying of that NP out of its clause? That is to say, is the process one in which the lower clause becomes deprived of a subject, or one in which the lower clause remains intact after the application of Raising?[12] The surface structure under a copying analysis would be derived by pronominalization of the lower NP, if it is not already a pronoun, and then deletion by the independently-needed rule of Unstressed Subject Pronoun Drop. An analysis similar to this has been proposed for Raising in English[13] but was ultimately rejected by Postal (1974, p. 266-267) because it would require an otherwise unmotivated rule for English to delete the lower occurrence of the NP.

It is important to note that the independent rule of EQUI-NP-Deletion, which in earlier accounts (e.g. Postal (1971) and Grinder (1972)) was taken to be the rule performing the necessary deletion of the lower NP in fact cannot operate here, for as Postal (1974) points out, it would then have to delete such NP's as there, tabs (in tabs be kept on), and others, which can be Raised, but which must be considered to be non-referential, and thus unable to trigger the rule of EQUI, which depends on conditions of co-reference. Moreover, even if it were possible to redefine the conditions on EQUI so that NP's such as there could be subsumed under it, there would still be a problem with having EQUI apply to the output of a Raising-by-Copying process in English. This is so because EQUI would have to be obligatory whenever Raising occurred, since no overt NP can surface in the lower clause of a Raising sentence, even though it is generally a lexically-governed rule which is optional with many verbs (e.g. I expect that I'll go, I persuaded John_i that he_i should go). That is to say, for the Raising cases, EQUI would be governed not by the matrix verb involved, but rather would depend on the application of another rule. Thus, by any account, a Copying analysis for English Raising would involve an unmotivated complication of the grammar, either by extra statements about the application of EQUI, or by the addition of an otherwise unnecessary deletion rule.

For Greek, though, Raising by Copying would not entail any such complication of the grammar. As has been mentioned earlier, Greek independently has a rule deleting unstressed subject pronouns. A normal Raising sentence would not be a situation in which the subject pronoun would receive stress, so the deletion, and resultant surface form, would automatically be accounted for by the grammar. Thus the theoretical problems for English inherent in an analysis of Raising as a copying process do not appear to hold for Greek.

Moreover, there is one superficial property of Raising sentences in Greek which might lead one to suspect that Greek Raising is something other than a rule by which the lower verb is simply deprived of its subject. As noted above in section one, the verb in the embedded clause after Raising is fully finite, showing marking for both person and number. Thus, there is no de-finitization accompanying the Raising process.[14] Postal (1974, p. 288, 386) has conjectured that Raising is always accompanied by the de-finitization of the clause that loses its subject. Though Postal does not make explicit what he actually means by "finite verb", his remarks make sense if we take it to mean a verb inflected for person and number. Although this hypothesis cannot be maintained in its strongest form, because in Japanese, Raising leaves behind a fully finite clause, it may be tenable, as Postal himself suggests, but does not make explicit (1974, p. 386), in a weaker form, ad hoc though it may seem, that excludes verb-final languages. Greek, however, would be a counter-example to even the weakened form of this universal, for it is not a verb-final language, yet the verb in the lower clause continues to keep the person and number marking appropriate before Raising.

In this regard, it should be mentioned that in general, Greek does not have non-finite verb-forms--there is no infinitive proper in the language, only inflected subjunctive verb forms marked with the verbal particle na, which appear where other languages have infinitives.[15] However, under at least one interpretation of Postal's claim, that only languages with appropriate non-finite verb forms could have a rule of Raising, we might expect to find that Greek did not have a Raising rule.[16] Thus the Greek facts can be taken to bear on the validity of Postal's claim, and conversely, whatever validity his claim may have can be grounds for suspecting that there may be more to Raising in Greek than just the simple removal of a subject from its clause, for if the subject of the lower clause is copied out of its clause, the lower clause would still have a subject after Raising and there would be no reason to expect the verb to become de-finitized.

3.1: The syntactic evidence for Raising-by-Copying in Greek is of two types. The first concerns both the fact that a pronominal form corresponding to the Raised NP can appear overtly on the surface, and also the conditions under which it can occur. The second is based on the nature of the apparent clause-remnant after Raising. If Raising is accomplished by Copying, then the prediction is that the embedded clause will behave with respect to certain processes as if it were a full clause that had a subject, and not a "punctured" clause that had lost its subject before the operation of the process in question. Thus the nature of the complement after Raising can specifically be compared with the one in Object-EQUI structures, as with the verb *piθo* 'persuade', under the crucial assumption that there does exist a rule of Object-EQUI in the language. This is not a trivial assumption, since Greek has a rule of Subject Pronoun Drop. Thus, it is conceivable that instead of EQUI applying, what is operative in the derivation of (18) from (17):

(17) episa ton yani [pos o yanis fevgi]
(18) episa ton yani na figi
persuaded-1sg John-ACC leave-3sg-SUBJ
'I persuaded John to leave'

is simply Pronominalization of the lower occurrence of *o yanis* and then Subject Pronoun Drop, which is presumably a late rule, since, among other things, it is discourse-conditioned. Evidence that bears on this assumption comes mainly form the contrasts in the behavior of the respective sentential complements to *piθo* and to Raising verbs such as *θelo*, for they seem to be hard to account for if *piθo* sentences have a subject in their lower clause throughout the course of their derivation, up to the point at which Subject Pronoun Drop applies. Although the question of Raising-byCopying and the existence of EQUI are independent problems, they intersect in the second set of data to be treated here. Thus, these data will in essence be testing the following bi-partite hypothesis:

(19) Modern Greek has Raising-to-Object-Position by

> Copying and not by Removal of the subject of the lower clause, and an actual rule of EQUI-NP-Deletion from Object-Position (Object-EQUI)

while the first set of data will be of relevance only to the first part of (19), namely, that Greek Raising is by Copying. Finally, it should be said here that in testing to see whether Greek Raising is by a Copying process, it is being tacitly assumed that a language would not have both Raising-by-Copying and Raising-by-Removal of the lower subject. If this assumption is wrong, then the task becomes one of determining what the conditions for Copying as opposed to Removal actually are. Nothing more will be said about this assumption here.

3.2: As mentioned above, a pronoun coreferent to the Raised NP can appear in the downstairs clause, under appropriate conditions, so that (20) is a possible variant of the Raising construction in (21):

(20) (?)Θeoro ti maria pos afti ine eksipni
consider-1sg mary-ACC she-NOM be-3sg smart-NOM-FEM
'I consider Mary to be smart'

(21) Θeoro ti maria pos ine eksipni
'I consider Mary to be smart'

This is a situation which directly points to Raising as a Copying process, for the occurrence of the pronoun would be difficult to account for if Raising removed the lower subject entirely from its clause. Such sentences would either have to be due to an underlying Object-EQUI subcategorization on these verbs, a possibility which was rejected earlier (see pp. 3-7), or else to an *ad hoc* rule which, after Raising had operated, copied the appropriate pronoun downstairs.

Sentence (20) is marked (?) to indicate that it is well-formed only if the pronoun receives emphasis. Otherwise, the presence of the coreferent pronoun downstairs is superfluous and makes the sentence unwieldy--while it is perhaps not ungrammatical, neither is it really Greek. The reason for this is that subject pronouns in Greek generally must be stressed on the surface; compare (22), with no surface subject pronoun, with (23), where the pronoun appears:

(22) ida ton yani xθes ke mu ipe kati
saw-1sg John-ACC yesterday and me told something
'I saw John yesterday and he told me something'

(23) (?)ida ton yani xθes ke aftos mu ipe kati
he-NOM told-3sg
'I saw John yesterday and he told me something'

Sentence (23) without emphasis on *aftos*, has the same unwieldy feel to it as the Raising sentence (20). Thus it appears that the conditions governing Subject Pronoun Drop are the same as those which control the appearence of the pronominal form in the Raising cases. This is an important point, because one of the theoretical considerations which made it conceivable that Greek Raising was by Copying was the fact that an extra rule to delete the lower occurrence of the NP would not be needed, for a rule already existing in the language would be able in principle to perform the necessary deletion. This would only hold, though, if that rule did not have to be complicated in any way in order to account for the Raising sentences.

The parallelism of the conditions on Subject Pronoun Drop and the occurrence of the pronoun downstairs in Raising sentences is confirmed by the following data. Certain conditions favor or in fact require the presence of a pronoun. The adverb mono 'only', for instance, requires that the pronoun be retained in order to have the reading in which it modifies the subject of a sentence; compare (24) with (25) as responses to the question "What do you think of Peter?":

(24) mono aftos ine eksipnos
only he-NOM be-3sg smart-NOM
'Only he is smart'

(25) mono ine eksipnos
'He is only smart (and nothing else)'
≠ '*Only he is smart'

We find the exact same situation in the Raising cases:

(26) Georo ti maria pos mono afti ine eksipni
she-NOM smart-NOM-FEM
'I consider only Mary to be smart'

(27) Georo ti maria pos mono ine eksipni
'I consider Mary to be only smart (and nothing else)'
≠ '*I consider only Mary to be smart'

To treat this as an idiosyncrasy of pronominalization in Greek, saying perhaps that the adverb mono requires a pronoun along with it which is copied onto it from its antecedent, so that if Raising deprived mono of its head NP, some later rule would copy the appropriate pronoun back onto it, would completely miss the clear connection between the occurrence of the pronoun in (26) and its appearence under emphasis in (20), not to mention the totally ad hoc nature of the copying rule required. Thus, the conclusion seems to be warranted that Raising in

Greek is by copying, and that the lower occurrence of the NP that is copied out of its clause is later deleted by the rule of Unstressed Subject Pronoun Drop.

3.3: The second argument for Raising-by-Copying centers on the hypothesis given in (19), and is based on the behavior of the intensive reflexive *o idios* 'the same, very, oneself, etc.', a form which is inflected for gender, number, and case. It generally occurs next to its antecedent, as in (28):

(28) o petros$_i$ o idios$_i$ ide ton yani$_j$
Peter-NOM the-same-NOM saw-3sg John-ACC
'Peter himself saw John'

but can float to the right in a simple sentence:[17]

(29) o petros$_i$ ide ton yani$_j$ o idios$_{i/*j}$
'Peter himself saw John'.

And, it need not float to sentence-final position:

(30) o petros$_i$ ide ton yani$_j$ o idios$_{i/*j}$ sto dromo
on-the street
'Peter himself saw John on the street'.

One restriction on this floating is that in complex sentences, it seems that *o idios* cannot float over a full embedded sentence[18]:

(31) *o petros$_i$ ipe pos i maria efige, o idios$_i$
Peter-NOM said-3sg Mary-NOM left-3sg NOM
'Peter himself said that Mary had left'

(32) *o petros$_i$ pistevi pos i gi ine tetragoni o idios$_i$
believes-3sg the-earth-NOM square
'Peter himself believes that the earth is square'

(33) *o petros$_i$ nomizi pos i maria agapai ton yorgo
thinks-3sg loves-3sg George-ACC
o idios$_i$
'Peter himself thinks that Mary loves George'

With the Raising verb *θelo* 'want' and the verb *piθo* 'persuade', we find the following situation--o idios cannot float off of the subject of θelo over the clause left after Raising, but it can float off of the subject of piθo to the end of the sentence, over the complement clause; these facts are shown in (34) through (37):

(34) *o petros$_i$ θeli emena na ton agapiso o idios$_i$
want-1sg me him love-1sg
'Peter himself wants me to love him'

(35) *i maria$_i$ θeli ton yani na erθi edo i idia$_i$
Mary-NOM John-ACC come-3sg here NOM-FEM
'Mary herself wants John to come here'

(36) i maria$_i$ epise ton yani na ine kalos i idia$_i$
persuaded-3sg be-3sg good-NOM-MASC
'Mary herself persuaded John to be good'

(37) i maria$_i$ epise ton petro na ine kalo agori i idia$_i$
Peter-ACC good-boy-NTR-NOM
'Mary herself persuaded Peter to be a good boy'

If the hypothesis of (19) were not accepted, then separate restrictions would be needed to account for the impossibility of floating o idios across a full clause and across the apparent clause-remnant left by Raising. Furthermore, some ad hoc statement would be needed to distinguish the piθo remnant from the θelo remnant, because of the contrast in their behavior. On the other hand, hypothesis (19) would account for the observed facts straight-forwardedly, for at the time the Float rule applies[19], the Raising remnant would be a full clause and the EQUI remnant would not be. Therefore, the one restriction on the Float rule, independently needed because of (31) through (33), plus hypothesis (19), would explain (34) through (37).

In the face of this evidence, it is quite hard to maintain the converse claim that there is no Object-EQUI and that Raising is by complete removal of the subject of the lower sentence, for if the *piθo* sentences arose by Pronominalization and then Subject Pronoun Drop, we would expect *o iðios* not to be able to float off of the subject of *piθo*, if the Float rule applied before Subject Pronoun Drop, or if the ordering were the opposite, then both *θelo* and *piθo* should behave alike in this regard. It is crucial to this argument that Raising and EQUI occupy similar positions in derivations, in particular, that Raising not be post-cyclic if EQUI is cyclic. The evidence for the cyclicity of EQUI has to do with the removal of the EQUI trigger from the position from which it would ordinarily trigger the rule, by other rules such as Passive or Question Formation. The evidence for the cyclicity of Raising is of the same type as is found in English, e.g. interaction with Reflexivization and with Passive. Thus, these facts of *o iðios*-Float provide rather strong evidence in favor of the hypothesis advanced in (19).

And, the argument can be taken even one step further, for having Raising be by Copying eliminates the need for an extrinsic ordering of cyclical rules.[20] If Raising is by Copying, then free ordering of the rules of Raising and *o iðios*-Float is possible, because *o iðios* will not be able to float over the complement clause either before or after Raising under this hypothesis, for the complement clause is a full clause both before and after Raising. On the other hand, if Raising is not by Copying, the *o idios*-Float rule would have to be extrinsically ordered before Raising to prevent it from allowing *o idios* to float across the "punctured" clause left after Raising in that hypothesis, or else an *ad hoc* extra statement would have to be placed on *o idios*-Float blocking its application specifically whenever Raising has first applied. In view of the lack of evidence for extrinsic orderings between cyclic rules in syntax, such a consequence has to count against a non-copying analysis for Raising in Greek. It should be stressed, however, that this is not necessarily a separate argument for Raising-by-Copying, but is rather a further consequence that the facts of (34) through (37) would impose on a grammar that did not have Raising by a copying process and did not have a rule of Object-EQUI.

4. Conclusion

In conclusion, it can be stated that the evidence of section three makes it very likely not only that Greek does have a true rule of Object-EQUI-NP-Deletion, but furthermore, that Raising-to-Object-Position in Greek is a Copying rule, and not a rule which deprives the lower clause of a subject altogether. In that case, the putative universal discussed in section *3.0*, Postal's de-finitization universal, is not violated by the facts of Greek, for the lower verb will continue to have a subject after the operation of Raising, and so would not be expected to become non-finite.

Finally, we can consider the more interesting question of whether languages that have no infinitival verb forms can have rules such as Raising operate so as to deprive embedded verbs of their subjects. We can entertain the possible hypothesis that only languages without infinitives will have Raising-by-Copying and furthermore, that in such languages, Raising necessarily will be a copying process. Raising is similar to EQUI in its typology, in that they are both rules which operate between two and only two clauses. Moreover, EQUI strips an embedded sentence of its subject, just as Raising does in those languages where it does not operate by Copying. Thus, the fact that EQUI has been shown to exist in Greek would seem to indicate that a non-copying Raising rule should be possible in a language with no infinitives. These, however, are all questions that can be determined empirically, and so it is better that they be left to further investigation.

Appendix

Possible Counter-Evidence

The evidence of section three does in fact appear to support the claim that Raising in Greek is a Copying process, and that furthermore, Greek has a rule of Object-EQUI. However, there are a few sets of data which at first glance appear to be troublesome to these results, in that under certain assumptions about the process involved, hypothesis (19) makes the wrong predictions. However, such counter-evidence will turn out to be just apparent and not real counter-evidence, since there are reasonably well-motivated analyses of the phenomena involved under which the data become irrelevant to the issues which hypothesis (19) deals with. The first such set of data is concerned with the reference of the present active participle, and the second with the conditions under which the complementizer pos may be deleted.

A.1: The present active participle is indeclinable in form, and occurs with no overt subject, so that there can be ambiguity as to which NP in a given sentence the participle refers to. In general, it seems that the participle is interpreted as going with a nominative NP, that is, the subject of some verb. Thus in a simple sentence, the participle is read as going with the subject:

(38) ida$_i$ ton yani$_j$ perpatondas$_{i/*j}$ sto dromo
saw-1sg John-ACC walking-PTCPL on-the street

= 'I saw John as I was walking on the street'
≠ '*I saw John as he was walking on the street'.

In a complex sentence, where there is more that one nominative NP subject, the position of the participle generally affects the possible reading--when it is sentence-initial, it goes with the matrix subject only, but when it is sentence-final, it can be read with the matrix or embedded subject:

(39) kapnizondas$_{i/*j}$ sto puro tu, o petros$_i$ nomise
smoking-PTCPL on-the cigar his Peter-NOM thought
pos o yanis$_j$ xamogelase
COMP John-NOM smiled-3sg
'While he$_{i/*j}$ was smoking his cigar, Peter$_i$ thought that John$_j$ smiled'.

(40) o petros$_i$ nomise pos o yanis$_j$ xamogelase kapnizondas$_{i/j}$ sto puro tu
'While he$_{i/j}$ was smoking his cigar, Peter$_i$ thought that John$_j$ smiled'.

Whether this process is one of finding a referent by an interpretive rule for a participle generated with no subject underlyingly, or one of deleting, by some form of an EQUI rule, the subject of the participle under coreference with another NP in the sentence, probably cannot be decided on the basis of the Greek facts, regardless of the theoretical status each approach may have. It will be assumed here that the two are equivalent with respect to these facts, and the neutral terminology of the "reading" the participle has will be used, with no theoretical bias to be understood.

Concerning the Raising and Object-EQUI sentences, there are the following facts which would seem to run counter to the claims of hypothesis (19):

(41) Θelo$_i$ ton petro$_j$ na skotoΘi apo ton yani$_k$
1sg Peter-ACC kill-PASS-3sg by John
fevgondas$_{i/*j/*k}$ apo to spiti
leaving-PTCPL from the house
'I want Peter to be killed by John, as I/*he am/*is leaving (from) the house'

(42) episa$_i$ ton yani$_j$ na me$_i$ ksanadi, fevgondas$_{i/j}$
1sg John-ACC me see-again-3sg
apo to spiti
'I persuaded John to see me again, as I/he was leaving (from) the house'.

In (41), where Raising has occurred, the present active participle is not read with the former lower subject, but instead goes with the matrix subject, whereas in (42), an Object-EQUI sentence, the participle is read with either the matrix subject or the matrix object. Sentence (41) contrasts with (43), where Raising has not taken place, and both referents are possible with the participle:

(43) Θelo$_i$ na skotoΘi o petros$_j$ apo ton yani$_k$, fevgondas$_{i/j/*k}$ apo to spiti
1sg 3sg Peter-NOM by
'I want Peter$_j$ to be killed by John$_k$, as I/he$_{j/*k}$ am/is leaving (from) the house'.

These facts run counter to what hypothesis (19) would predict, under the necessary assumptions that the process by which the referent of the participle is fixed takes place after Raising, possibly post-cyclically, and, before Subject Pronoun Drop. In that case, (19) would predict that the participle will be read with the former lower subject in Raising cases, because there would be a nominative NP present in the lower clause, in the in the form of the intact downstairs subject, which the participle could be associated with. And, for the Object-EQUI cases, since (19) provides for there being no subject in the lower sentence after EQUI, the participle should be read only with the matrix subject, inasmuch as it otherwise does not appear to be able to go with accusative NP objects.

However, (41) is not representative of the whole situation with Raising and the reading of the participle--it seems to be more complicated than (41) would indicate, for in fact, there do exist some sentences in which the participle is read with the Raised NP:

(44) o petros$_i$ iθele ton yani$_j$ na tragudai, perpaton-
NOM wanted-3sg ACC sing-3sg walking-

das$_{i/j}$ sto sxolio
PTCPL to-the school
'Peter$_i$ wanted John$_j$ to sing, while he$_{i/j}$ was walking to school'.

(45) θeoro$_i$ ton yani$_j$ pos ine fliaros, milondas$_{?i/j}$
consider-1sg ACC be-3sg talkative talking

sti taksi
in-the class
'I consider John to be garrulous, when $\left\{\begin{matrix}\text{he is}\\\text{?I am}\end{matrix}\right\}$ talking in class'.

These sentences, especially (45) suggest that semantic factors may well be at work in allowing the various possible readings; *talking* is more likely to be an action connected with someone who is identified as *garrulous*, rather than with one who is doing the mental activity implicit in *θeoro*. Furthermore, even though sentence-initial participles are generally read with the matrix subject, the preposed version of (45) still has the reading of the participle going with the Raised NP:

(46) milondas$_{?i/j}$ sti taksi, θeoro$_i$ ton yani$_j$ pos ine
fliaros
'when $\left\{\begin{matrix}\text{he is}\\ \text{?I am}\end{matrix}\right\}$ talking in class, I consider John
to be garrulous'.

If semantic factors control the participial readings, then the apparent generalization that the participle is read with nominative NP's only cannot be maintained, and the counter-evidence to hypothesis (19) disappears. A particular set of semantic factors, possibly, though not necessarily, coupled with any considerations of particular structural configurations, would be the crucial determinant for the participial reading.

Moreover, there are other grounds also why the counter-evidence to hypothesis (19) may not be real counter-evidence, for the two assumptions that the participial-referent reading process takes place after Raising and before Subject Pronoun Drop, have no independent motivation. Clearly, the deep structure configuration is not curcial to this process, because a subject derived by Passive, and not the demoted subject, is linked to the participle:

(47) o petros$_i$ skotose ton yani$_k$ fevgondas$_{i/*j}$
NOM killed-3sg ACC leaving-PTCPL
apo to spiti
'Peter$_i$ killed John$_j$, as he$_{i/*j}$ was leaving (from)
the house'

(48) o yanis$_j$ skotoθike apo ton petro$_i$ fevgondas$_{*i/j}$
NOM kill-PASS-3sg by
apo to spiti
'John$_j$ was killed by Peter$_i$, as he$_{*i/j}$ was leaving
(from) the house'.

Since the process must therefore wait until after Passive has applied, we can hypothesize that it is the cycle-final state of affairs which is crucial to the operation of this process. If this hypothesis is valid, and clearly, it is a question that must be determined empirically, then the participial-referent process becomes irrelevant to the hypothesis of (19). This would be so because if the the process is dependent on the cycle-final subject, then it would either be a cyclic process itself or else be global but able to determine the cyclic subject of any earlier stage in a derivation. The process would then operate only with the pre-Raising and pre-EQUI situation, when the complement clauses of these two are identical in terms of having a subject, and thus be irrelevant to hypothesis (19).

And, as to the second assumption, we need only look at the contrast between (41) and (49), where Raising has taken place, but Subject Pronoun Drop has not deleted the lower occurrence of the NP because it is stressed, occurring with the adverb mono. Accordingly, the participle can only be read as going with the lower subject:

(49) iθela$_i$ ton yani$_j$ na skotoθi mono aftos$_j$ apo ton
wanted-1sg ACC only he-NOM by
petro$_k$, fevgondas$_{*i/j/*k}$ apo to spiti
'I wanted only John$_j$ to be killed by Peter$_k$, as $\left\{\begin{matrix} *I \\ he_{j/*k} \end{matrix}\right\}$ was leaving (from) the house'.

Sentences such as (41), then, may indicate that where various derivations are possible, and there is no semantic factor that influences the appropriateness of a particular reading, then the participle is interpreted as going with the nearest nominative NP on the surface. The participial-referent reading process would then be dependent on the surface structure configurations, and so would be affected by the application of Subject Pronoun Drop.

It is unclear which of these various proposals is in fact correct, and obviously, more work will have to be done concerning these problems with the reading of the participle. But, it seems likely that at least some of the suggestions given here will prove to have relevance to the final solution. Thus, the apparent counter-evidence to (19) can be considered to be no more that just apparent.

A.2: The second set of apparently troublesome data centers on the deletion of the complementizer pos 'that'. We find the following pattern for Raising verbs such as Θeoro 'consider' which occur with pos:[21]

(50) o petros Θeori $\left\{\begin{matrix}\text{pos}\\ \emptyset\end{matrix}\right\}$ o yanis ine eksipnos
3sg NOM smart-NOM
'Peter considers John to be smart'

(51) o petros Θeori ton yani $\left\{\begin{matrix}\text{pos}\\ *\emptyset\end{matrix}\right\}$ ine eksipnos
ACC
'Peter considers John to be smart'

That is, pos, apparently optional with full clauses, is obligatory with the clause left over after Raising.[22] This is potential counter-evidence to the analysis of Raising as a Copying process because it appears to be a way in which the embedded clause after Raising does not behave like a full clause. The non-optionality of pos in (51) would then indicate that there is in fact no subject to the lower verb ine. This counter-evidence, however, does not hold up, for the ungrammaticality of (51) may be attributed to factors which make it irrelevant to the question of Raising by Copying. In particular, it is the case that pos-Deletion, although not completely impossible, does not produce perfectly acceptable sentences when a complement clause has lost its subject by Subject Pronoun Drop:

(52) nomizo $\left\{\begin{matrix}\text{pos}\\ \emptyset\end{matrix}\right\}$ aftos efige ya tin aθina
think he-NOM left-3sg for the Athens
'I think $\left\{\begin{matrix}\text{that}\\ \emptyset\end{matrix}\right\}$ he left for Athens'
(53) nomizo $\left\{\begin{matrix}\text{pos}\\ ?\emptyset\end{matrix}\right\}$ efige ya tin aθina
'I think that/∅ he left for Athens'.

The disappearence of the subject pronoun contributes to the unacceptability of (51). This suggests that pos-Deletion applies late in a derivation, after Subject Pronoun Drop has deleted the lower pronoun in (53), and thus in (51). In that case, pos-Deletion would have no bearing on the question of how Raising is carried out.

Still, though, pos-Deletion in (53) is not as bad as in (51), so other factors may be at work as well. It is possible, although perhaps not provable, that the juxtaposition of an accusative NP with a finite verb is what causes the further unacceptability of (51). The impossibility of pos-Deletion in the Raising cases could then perhaps be connected with the need to be able to identify clause-initial boundaries; the presence of the complementiser would facilitate this process, whereas its absence would hinder it.[23] The pos-Deletion data therefore would not constitute counter-evidence to the claim that Greek Raising is by Copying.

Footnotes

*I would like to thank Judith Aissen and Jorge Hankamer for their help and suggestions on earlier versions of this paper, and Elias Dinopoulos for his native judgements.

1. This Raising process is restricted to subjects of lower clauses. Despite the existence of sentences such as:

(i) Θelo ton yani na (ton) agapisi i maria
John-ACC him love-3sg Mary-NOM
"I want John that Mary love him"

which superficially appear to involve the raising of a non-subject (since ton yani is the object of agapisi), it is clear that ton yani has not become part of the upper clause. For one thing, such an NP cannot become the reflexive form ton eafton, but can only be a non-reflexive pronoun, and this Reflexivization process is clause-bounded (see pp. 7-8):

(ii) iΘela emena/*ton eafton mu na agapisi i maria
me the-self of me
'I wanted Mary to love me'

nor can it cliticize onto Θelo:

(iii) *me iΘela na agapisi i maria
me-CLIT
'I wanted Mary to love me'.

Therefore, (i) must be the result of a Scrambling rule which moves constituents around within a clause. The presence of the clitic ton, then, would be due to a dislocation process occurring within the lower clause. Furthermore, the verbal particle na must be regarded as not signaling a clause-boundary, and so is not a complementizer proper.

2. I assume here that a Phrase-Structure rule generation of the putative Raising sentences is not at all motivated--the standard sorts of arguments against such a generation, e.g. those based on lexical facts, the possibility of passive morphology in the embedded clause, etc., all hold for Greek.

3. This class of verbs is rather small, and throughout, Θelo and Θeoro will be taken as paradigmatic for this class.

4. The literal reading is also ungrammatical with piΘo, presumably because piΘo requires an animate NP object, and ksilo is non-animate.

5. This presumes that Greek has a rule of EQUI--for evidence supporting this assumption, see below pp. 19-22, section 3.3.

6. The middle voice of the verb is by far the most common way of expressing reflexive actions.

7. This last stipulation is necessary because of sentences such as:

(iv) ego nomizo pos o eaftos mu θa figi se ligo
I think the-self-NOM of me FUT leave soon
'I think that as for myself, I will leave shortly'

Here the reflexive appears across a clause-boundary from its antecedent, and is nominative: this however, seems to be a different case from the reflexivization in (12). The nominative reflexive can be used only in contexts which imply a marked dichotomy between opposing desires or effects within the same person (a distinction that is hard to capture in an English translation). Furthermore, it can appear several clauses away from its antecedent, and in fact, need not have any overt antecedent--the non-nominative reflexive requires an antecedent, though:

(v) a. nomizo pos i maria epise ton yani na pi
think-1sg Mary-NOM persuaded-3sg John-ACC say
pos prepi na figi amesos o eaftos mu
is necessary leave immediately the-self-NOM my

'I think that Mary persuaded John to say that it was necessary for myself to leave (even though I really wanted to stay)

b. o eaftos mu θa fevgi se ligo
the-self-NOM of-me FUT leave-3sg soon
'Myself will (probably) be leaving shortly (even though I really want to stay)'

c. *o yanis xtipise ton eafton mu
John-NOM hit-3sg the-self-ACC of-me
'*John hit myself'.

Since (iv) cannot have the unmarked reading of "I think that I'll go soon", with no emphasis or contrast involved, and (12) does not have the contrastive reading, we can conclude that the phenomenon in (iv) and (v) is truly distinct from that in (12).

8. Note that the Reflexive form ton eafton requires that the downstairs verb have third person agreement on it. For a dis-

cussion of this and related phenomena, cf. Perlmutter and Joseph (forthcoming).

9. In both (13a) and (14a), the reading where the adverb modifies the matrix verb is possible, but this reading in each case requires there to be pauses around the advert, so that it is evidently a parenthetical. Thus, under normal intonation, (13a) and (14a) have only the reading with the adverb modifying the embedded verb.

10. Postal (1974) develops a similar argument for Raising in English based on the reading of Adverbs; see p. 146-154. The argument here is based on that.

11. Evidence from Kuno (1972) indicates that it holds in Japanese as well.

12. This formulation is not intended to have any theoretical bias--talking in terms of the "removal" of the subject of sentences is amenable to either a transformational framework in which there is actual movement of an NP out of one clause and into another, or a relational framework in which an NP ceases to bear the grammatical relation "subject-of" to the lower verb.

13. Cf. Postal (1971), p. 162-163; Ross (1968), p. 275, 283-4; and Grinder (1972), p. 97-98.

14. As Postal himself (1974, p. 386n) notes, this therefore also entails a violation of Chomsky's Tensed-S Constraint (cf. Chomsky (1973), p. 237-238), to whatever extent it was intended to be or may be taken to be universal. Chomsky's system denies the existence of rules such as Raising, but the fact that the Raised NP passivizes (e.g. with the verb *θeoro*) upstairs is a violation of the constraint.

15. The one form which is non-finite, the present active participle, is impossible as the verb in the embedded clause after Raising:

(vi) a. *θelo ton yani trexondas sto dromo
want-1sg John-ACC running-PTCPL on-the street
'I want John (to be) running on the street'

b. θelo ton yani na trexi sto dromo
run-3sg
'I want John to be running on the street'

However, the inappropriateness of a present active participle as the embedded verb could perhaps be motivated on semantic grounds; therefore, Greek would be irrelevant to Postal's universal because it lacked the appropriate non-finite verb forms, but see p. 15.

16. This in itself is an interesting point, for Raising in Modern Greek appears to be rather limited in its scope--there do not seem to be many predicates that allow it, and those that do have the non-Raised forms the more common variant. In earlier stages, Greek had Raising as a much more productive and widespread rule, and furthermore, had infinitival verb forms. Thus, we may have here an instance of a language in the process of losing a syntactic rule.

17. This float process is not restricted to occurring only off of subjects, but such cases are the only ones of interest to us here. Other quantifier-like elements can float but do not show the relevant properties for this argument.

18. The proper generalization, it seems, must involve the notion of "full" clause, as opposed to one that has been "punctured" by the loss of its subject due to a rule such as EQUI. This must be so because o idios cannot float over embedded sentences containing Weather-Verbs, which presumably have no subject underlyingly (although possibly this could be taken to support a view that such verbs have dummy subjects in deepest structure):

(vii) *o yanis pistevi pos vrexi/xionizi tora o idios
John-NOM believe-3sg rain / snow now NOM-MASC
'John himself believes that it is raining/snowing now'

Furthermore, the level at which this constraint applies must be before Subject Pronoun Drop, or else the removal of a subject by this rule must be considered different from the removal by a rule such as EQUI (a proposal which may be independently justifiable in languages where EQUI triggers de-finitization of a verb but Subject Pronoun Drop, naturally, does not), because of sentences such as (viii), in response to the question "What does Mary want concerning Peter?":

(viii) *i maria θeli na ine kalo agori i idia
Mary-NOM 3sg be-3sg good-boy NOM-FEM
'Mary herself wants him to be a good boy'

This fact ties in with the observations regarding o idios-Float in Raising sentences.

19. This assumes that the Float rule applies before Subject Pronoun Drop and after Raising and EQUI. Subject Pronoun Drop

has been argued to be post-cyclic at least for other languages, and a late ordering for the rule in Greek seems to be warranted on the basis of these facts (and, cf. footnote 18). As to the Float rule and EQUI, if it applied before EQUI, special statements would be needed to allow *o idios* to float across the complement clause.

20. Evidence for Raising being cyclical is of the same type as in English, cf. p. 21. If *o idios*-Float had to apply before Raising, then it too would have to be cyclic.

21. The verbal particle *na* that occurs with *θelo* can never be deleted; thus only *θeoro* is of interest here.

22. These facts can also be used as an argument that the NP has in fact been Raised into the upper clause, under the assumption that *pos* is required to maintain the delineation of the clause boundary; cf. below and footnote 23.

23. This functional constraint on complementizer deletion was inspired by a similar observation for English made in Kuno (1974), p. 134, n.16.

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TURKISH COMPARATIVES*

Laura Knecht
MIT

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0. Introduction

0.1 Goals and Outline

In this paper, I present the results of a preliminary investigation of comparative constructions in Turkish. Given the complexity of comparatives in general and the fact that they have barely been described in Turkish let alone analyzed in any detail, my account will necessarily be quite restricted in scope and regrettably sketchy in certain areas.

There are two comparative constructions in Turkish: a clausal comparative and a phrasal comparative. (These terms will be discussed at greater length below.) This paper is primarily devoted to motivating a rule of Comparative Ellipsis (CE) by which the latter type is derived from the former.

In Section 1, I introduce basic terminology and describe some of the more salient features of the two comparative constructions. The rule of Comparative Ellipsis is proposed and an initial characterization of its operation is provided.

In Section 2, I turnto Comparative Deletion (CD), the rule that deletes a compared constituent in the comparative clause under identity with a constituent in the controlling clause, and attempt to specify what may serve as its target. I show that there is a constraint operative in Turkish which blocks extraction of the subject of the comparative clause by Comparative Deletion and renders NP's contained in such subjects relatively inaccessible to the rule. Finally, I discuss certain classes of sentences which, it has been argued, lack subjects (Knecht, 1974; Breckenridge, 1975; Hankamer and Knecht, 1975) and then show that the aforementioned constraint does not operate in these sentences, thereby providing additional support that they are subjectless.

In Section 3, I take up the question of whether the clausal and phrasal constructions are related by a rule. I show that the grammaticality pattern established (in Section 2) for the first is preserved in the second and argue that this generalization can only be captured if the two constructions have the same underlying source. Furthermore, I present evidence that the ellipsis rule responsible for deriving the phrasal from the clausal operates only in comparatives, i.e. it is not a general ellipsis rule.

In the final section, I briefly compare Comparative Deletion with another extraction rule, Relativization, and end with a discussion of the theoretical and universal consequences of my findings.

0.2 Some Basic Facts about Turkish

Turkish is an SOV language which encodes information about case, plurality, person, tense, etc. in suffixes. P-phrases are the post-positional type; adjectives and articles precede their nouns and relative clauses and comparative clauses precede their heads. Relativization and Comparative Deletion are unbounded deletion rules which operate from the head into the relative/comparative clause, hence leftward.

1. The Phrasal and Clausal Comparative: Terminology and Description

1.1 Terminology

1.1.1 English

Like English, Turkish has two comparative constructions which I will term the *phrasal comparative* and the *clausal comparative* after Hankamer (1973). An example of the former in English is given below.

(1) I visit Ayşe more often than Hasan.

This sentence is ambiguous and has the readings corresponding to the following clausal comparatives.

(2)a. I visit Ayşe more often than I visit Hasan.
b. I visit Ayşe more often than Hasan does.

On the basis of these examples, I introduce some of the terminology that will be used in the course of this paper.

- the remainder: in the phrasal comparative, a single NP (preceded by than in English), e.g. Hasan in (1); in the clausal comparative, the remains of a clause, e.g. I visit Hasan in (2a) and Hasan does in (2b).
- the trigger: the quantified constituent in the controlling clause, e.g. more often in (2a) and (2b).
- the target: the compared constituent in the comparative clause obligatorily deleted by Comparative Deletion, e.g. (x much) often in (2a) and (2b).

1.1.2 Turkish

The Turkish phrasal comparative corresponding to (1) above is

(3) I visit Ayşe more often than Hasan.

Ben Ayşe-yi Hasan-dan daha sık ziyaret
I " -ACC " -ABL more often visit
ed-er-im.
do-AOR-1

Notice that the remainder is marked ablative, a case used elsewhere in Turkish, often to express the notion 'from':

(3') Ben Ayşeyi Hasan -dan daha sık ....
remainder ablative

As in English, (3) is ambiguous between the following clausal comparatives:

(4)a. I visit Ayşe more often than I visit Hasan.

Ben	Ayşe-yi	ben-im	Hasan-ı	ziyaret
I	" -ACC	I -GEN	" -ACC	visit

et-tiğ-im-den	daha sık	ziyaret	ed-er-im.
do-PART-POSS-ABL	more often	visit	do-AOR-1

b. I visit Ayşe more often than Hasan visits Ayşe.

Ben	Ayşe-yi	Hasan-ın	Ayşe-yi	ziyaret
I	" -ACC	" -GEN	" -ACC	visit

et-tiğ-in-den	daha sık	ziyaret	ed-er-im.
do-PART-POSS-ABL	more often	visit	do-AOR-1

The remainder in a clausal comparative is marked ablative, too:

(4')a.	Ben Ayşeyi	benim Hasanı ziyaret ettiğim	-den....
		remainder	ablative
b.	Ben Ayşeyi	Hasanın Ayşeyi ziyaret ettiğin	-den....
		remainder	abl

Also of interest here is the marking of certain constituents within the comparative clause: the subject NP (ben in (4a) and Hasan in (4b)) is suffixed with the genitive; the verb appears with both a participial suffix (glossed as PART) and a possessive suffix which agrees in person and number with the subject. This marking is not unique to clausal comparatives; almost all embedded clauses in Turkish are nominalized.[1] For example,

(5) a sentential subject

That Hasan ate the squash is doubtful.

[Hasan-in	kabağ-ı	ye-diğ-i]	şüpheli.
" -GEN	squash-ACC	eat-PART-POSS	doubtful

(6) a sentential object

I believe that Orhan ate the squash.

Ben [Orhan-ın kabağ-ı ye-diğ-in-i]
I " -GEN squash-ACC eat-PART-POSS-ACC

san-ıyor-um.
believe-PRES-1

(7) a relative clause

the eggplant which the man ate

[adam-ın ye-diğ-i] patlıcan
man-GEN eat-PART-POSS eggplant

The participial suffix, -DIK-[2] which expresses non-future tense, has various phonological shapes determined by such rules as vowel harmony and consonant-assimilation. Another participial suffix that will appear in examples is -ACAK-; it has a future sense.

1.1.3 Pro Drop

One more comment is in order about the sentences discussed so far. Turkish generally drops subject pronouns unless they receive contrastive stress. Thus, if Fahir asks İlteriş, 'Ne haber?' ('What's the news?'), İlteriş could answer:

(8) I washed my sister.

Ø kızkardeş-im-i yıka-dım.
sister-POSS-ACC wash-PAST-1

His response could also be (9a); however, (9b) with an object pronoun dropped is not good in this discourse context.[3]

(9)a. My sister washed me.

Kızkardeş-im ben-i yıka-dı.
sister-GEN me-ACC wash-PAST

b. My sister washed Ø.

*Kızkardeş-im Ø yıka-dı.
sister-GEN wash-PAST

Given subject pronoun drop, the sentences in (3) and (4) may surface as

(3'') Ø Ayşe-yi Hasan-dan daha sık ziyaret
" -ACC " -ABL more often visit

ed-er-im.
do-AOR-1

(4'')a. Ø Ayşe-yi Ø Hasan-ı ziyaret
" -ACC " -ACC visit

et-tiğ-im-den daha sık ziyaret ed-er-im.
do-PART-POSS-ABL more often visit do-AOR-1

b. Ø Ayşe-yi Hasan-in Ayşe-yi ziyaret
" -ACC " -GEN " -ACC visit

et-tiğ-in-den daha sık ziyaret ed-er-im.
do-PART-POSS-ABL more often visit do-AOR-1

Additionally, the accusative NP, Ayşeyi, may be absent in the comparative clause in (4b), a deletion which subject pronoun drop will obviously not account for. The rule that is responsible will be discussed at some length throughout this paper.

1.2 Comparative Ellipsis and the Phrasal Remainder

1.2.1 CE Proposed

The claim that Turkish has a rule of Comparative Deletion seems relatively uncontroversial: the remainder in a clausal comparative looks exactly like a sentence of Turkish minus some constituent (which corresponds to a constituent in the controlling clause).

The derivational history of the phrasal comparative is considerably more mysterious, however. Are the remainders in such constructions base-generated or derived from the clausal type by means of some rule? The character of such a rule is fairly obvious: it must wipe out stuff in the clausal remainder under identity with stuff in the controlling clause, leaving behind non-identical remnants.[4] I will term this rule Comparative Ellipsis after Hankamer (1971); to see how it might apply in a derivation, consider the following:

(10)a. DS: Orhan bought more squash than Ayşe bought Q squash.

Orhan Ayşe-nin Q kabak al-dığ-ın-dan
" " -GEN squash buy-PART-POSS-ABL

fazla kabak al-dı.
more squash buy-PAST

b. CD: Orhan bought more squash than Ayşe bought.

Orhan Ayşe-nin Ø al-dığ-ın-dan fazla
" " -GEN buy-PART-POSS-ABL more

kabak al-dı.
squash buy-PAST

c. CE: Orhan bought more squash than Ayşe.

Orhan Ayşe-nin Ø Ø -dan fazla kabak al-dı.
" " -GEN ABL more squash buy-PAST

Notice that the leftover NP (Ayşenin) must drop its case-marker before the ablative.

d. Case Adjustment

Orhan	Ayşe	Ø	-den	fazla	kabak	al-dı.
"	"		ABL	more	squash	buy-PAST

1.2.2 Properties of the Phrasal Remainder

The two competing analyses of phrasal comparatives, i.e. the Base Hypothesis (BH) and the Ellipsis Hypothesis (EH) must account for the following facts.

- the phrasal remainder must be an NP

(11)a. Orhan speaks more quickly than intelligently.

*Orhan	akıllıca-dan	fazla	çabuk	konuş-ur.
"	intelligently-ABL	more	fast	speak-AOR

b. Mehmet is more intelligent than handsome.

*Mehmet	yakısıklı-dan	fazla	akıllıdır.
"	handsome-ABL	more	intelligent

- the phrasal remainder must contain exactly one NP; no clause junk is permitted. (The remainder is underlined in the following examples.)

(12)a. Hasan visited his daughter this year more often than his son last year.

*Hasan	kız-ın-ı	bu	yıl	geçen	yıl
"	daugh-POSS-ACC	this	year	last	year

oğl-un-dan	daha fazla	ziyaret	et-ti.
son-POSS-ABL	more	visit	do-PAST

b. Orhan bought more eggs from my shop than figs from yours.

*Orhan	ben-im	dükkân-im-dan	seninkin-den	incir-den
"	me-GEN	shop-POSS-ABL	yours-ABL	fig-ABL

fazla	yumurta	al-di.
more	egg	buy-PAST

c. Engin ate more apples in Ankara than figs in Paris.

*Engin	Ankara-da	Paris-te	incir-den	fazla
"	" -LOC	" -LOC	fig-ABL	more

elma	ye-di.
apple	eat-PAST

In conclusion, the phrasal remainder must be of the form NP-ABLATIVE.

Base-generating phrasal comparatives seems to account straightforwardly for this fact: if the remainder was never part of a sentence, it follows automatically that no clause junk will ever appear in the remainder. And since only NP's are case-marked in Turkish, it also follows that the grammar will generate neither ADJ-ABLATIVE nor ADV-ABLATIVE.

Under the other theory, it looks like we must go to some length to insure that the proposed ellipsis rule leaves behind at most one NP.

The apparent simplicity of the Base Hypothesis relative to the Ellipsis Hypothesis falls down, I believe, upon closer inspection. It is a fact about Turkish, or perhaps a universal fact, that case-markers only attach to constituents of NP status.[5] If this can be taken as a surface-defined principle, it follows that a phrase of the form X-ABLATIVE where X is not an NP will be ill-formed regardless of whether X is the leftover of some ellipsis process. By the same token, the ablative suffix cannot attach to a non-constituent as it has in the sentences in (12). Consider, for example, (12c); after ellipsis removes the embedded verb (and the subject), we are left with a series of elements without constituent status.

(12)c.	Engin	Ankara-da	[Engin-in	Paris-te
	"	" -LOC	" -GEN	" -LOC

	incir	ye-diğ-in]	-den	fazla	elma	ye-di ⟶
	fig	eat-PART-POSS	ABL	more	apple	eat-PAST

Engin Ankarada [Ø Pariste incir Ø] -den fazla
elma yedi.

The point is that the constraint that rules out the sentences in (11) and (12) does not have to be encoded in the proposed ellipsis rule, thereby complicating it. It is a general constraint on case-marking.

Furthermore, this constraint may not be particular to Turkish. Perhaps it is universally the case that the remainder in a phrasal comparative has to be one NP.[6] In a language like Turkish, this follows from case-marking conventions; in a language like English, it follows from the fact that phrasal comparatives are prepositional phrases and the objects of prepositions can only be NP's. (See Hankamer (1973) for justification of this claim.)

With this in mind, consider the following English comparatives with underlined remainders.

(13)a. Grunwald brushes his teeth more vigorously than *meticulously*.

b. Ruby mailed marigolds to Sam more often than *orchids to Antonio*.

(14) Abernathy likes Dagwood better than *Miss Peach*.

The claim is that the comparative in (14) but not in (13) is the phrasal type.[7] Thus, the remainder in the former should be accessible to all the rules that usually apply to objects of prepositions (Hankamer, 1973) but the remainders in (13) should be untouchable since clausal comparatives are islands.[8] The prediction is correct.

(13')a. *Meticulously, Grunwald brushes his teeth more vigorously than.

cf. Meticulously, Grunwald brushes his teeth.

b. *It was Antonio that Ruby mailed marigolds to Sam more often than orchids to.

(*It was orchids that Ruby mailed marigolds to Sam more often than to Antonio.)

cf. It was Antonio that Ruby mailed orchids to.[9]

(14') It's Miss Peach that Abernathy likes Dagwood more than.

(Who does Abernathy like Dagwood more than?)

I conclude that there is evidence for a Turkish particular if not language universal constraint on the composition of phrasal comparatives. There is, therefore, no reason to complicate a rule of ellipsis in order to make it leave the right kind of remnant and there is, so far, no reason for preferring base-generation of phrasal comparatives over generation by ellipsis.

2. The Targets of Comparative Deletion

For the time being, I put aside the investigation into the derivation of phrasal comparatives. It will be taken up again in Section 3 at which point we will have compiled enough information about comparatives to decide between the competing analyses.

In this section, I turn to the question of what can be the target of Comparative Deletion. I show that any major constituent of the comparative clause can be extracted (although extractability varies) except the subject and furthermore that NP subconstituents of the major constituent functioning as subject tend to be less accessible than NP-subconstituents contained in non-subject major constituents.

In a final sub-section, I discuss impersonal passives and sentences in which a subject demotion rule has been claimed to apply (Hankamer and Knecht, 1975). I recapitulate the arguments that these sentences are subjectless (Knecht, 1974; Breckenridge, 1975; Hankamer and Knecht, 1975) and adduce additional support for this claim by showing that all the NP's in such sentences are extractable by CD. Given the subject-extraction constraint mentioned above, this outcome is explicable only if none of the NP's function as a subject.

2.1 Extraction of Major Constituents

2.1.1 Adjectives and Adverbs

When an adjective serves as the target of CD, the resulting comparative is not perfect.

(15) This apple is juicier than the pear is.

?Bu	elma	armud-un	ol-duğ-un-dan	daha	sulu.
this	apple	pear-GEN	be-PART-POSS-ABL	more	juicy

(16) This apple is sweeter than the pear is going to be.

?Bu	elma	armud-un	gelecekte	ol-acağ-ın-dan
this	apple	pear-GEN	in future	be-PART-POSS-ABL
daha	tatlı.			
more	sweet			

The explanation for the less-than-perfect status of these sentences may lie in the copula olmak. Ordinarily, simple predicative sentences in Turkish lack a copular verb; olmak is required in (15) and (16) merely to bear the participial and case suffixes. Therefore, it may be the case that the sentences are awkward because the copula functions merely as a place holder and carries no information of its own.

However, this conjecture does not explain why the following sentence was judged to be fully grammatical.

(17) Engin is less friendly now than he wants to be in the future.

Engin	şimdi	gelecekte	olmak	iste-diğ-in-den
"	now	in future	to be	want-PART-POSS-ABL

daha az	cana yakın.
less	friendly

Obviously, more investigation is needed here.

Unlike adjectives whose extraction by CD usually rates a '?', adverbs make extremely good targets. Consider the following.

(18) Ayşe goofs off more than she works.

Ayşe	çalış-tığ-ın-dan	fazla	dalga geç-iyor.
"	work-PART-POSS-ABL	more	goof off-PRES

(19) This plane flies to Ankara less often than the other does.

Bu	uçak	Ankara-ya	öbürün-ün	uç-tuğ-un-dan
this	plane	" -DAT	other-GEN	fly-PART-POSS-ABL

daha	seyrek	uç-ar.
more	infrequently	fly-AOR

Subdeletion, basically deletion of an adverb, is also possible in Turkish. It will be considered in Section 2.2 which deals with CD of subconstituents.

2.1.2 Direct Object NP's

Direct object NP's, like adverbs, extract very easily. All of the following sentences are fully grammatical.

(20) I gave less money to Orhan than Hasan did.

(20) cont.

(Ben)	Orhan-a	Hasan-ın	ver-diğ-in-den
I	" -DAT	" -GEN	give-PART-POSS-ABL

daha az	para	ver-dim.
less	money	give-PAST-1

(21) More guests came than I could feed.

(Ben-im)	doyur-abil-diğ-im-den	fazla	misafir
I-GEN	feed-ABLE-PART-POSS-ABL	more	guest

gel-di.
come-PAST

(22) Ali reads more books in the morning than Mehmet reads in the evening.

Ali	sabahları,	Mehmed-in	akşamları
"	in morn	" -GEN	in evening

oku-duğ-un-dan	fazla	kitap	ok-ur.
read-PART-POSS-ABL	more	book	read-AOR

2.1.3 Oblique NP's

Oblique NP's tend to be less accessible to CD than direct objects. There are some ill-understood exceptions to this general trend as well as considerable variability in the judgments elicited for oblique object comparatives.

2.1.3.1 Datives

In the following sentences, the object of a verb which idiosyncratically takes its object in the dative case has been extracted by CD.

(23) I'm going to ride more horses in one day than Fatos rides (DAT) in one week.

(23) cont.

?Bir	gün-de,	(ben)	Fatoş-un	bir	hafta	boyunca
one	day-LOC	I	" -GEN	one	week	during

bin-diğ-in-den	fazla	at-a	bin-eceğ-im.
ride-PART-POSS-ABL	more	horse-DAT	ride-PART-1

(24) The doctor saw more sick people than he could help (DAT).

Doktor	yardim	ed-ebil-diğ-in-den	fazla
doctor	help	do-ABLE-PART-POSS-ABL	more

hasta	gör-dü.
sick	help-PAST

When the extracted dative NP is an indirect object, acceptability goes down.

(25) More children came than I could give apples to.

??(Ben-im)	elma	ver-ebil-diğ-im-den
I-GEN	apple	give-ABLE-PART-POSS-ABL

fazla	çocuk	gel-di.
more	child	come-PAST

(26) I'm going to give figs to more children today than Orhan did.

??Bugün,	(ben)	Orhan-in	ver-diğ-in-den
today	I	" -GEN	give-PART-POSS-ABL

fazla	çocug-a	incir	ver-eceğ-im.
more	child-DAT	fig	give-FUT-1

Why (23) and (24) should be better than (25) and (26) is not known.[10]

2.1.3.2 Locatives

Sometimes, NP's marked locative serve well as the target of CD:

(27) Orhan built more shelves than Ayşe will be able to put her books on.

Orhan	Ayşe-nin	kitap-lar-in-i	bulundur-abil-
"	" -GEN	book-PLU-POSS-ACC	have-ABLE-

eceğ-in-den	fazla	raf	kur-du.
PART-POSS-ABL	more	shelf	build-PAST

(28) There are more mosques in Istanbul than we will be able to pray in during our visit.

İstanbul-da,	ziyaret-imiz	boyunca	namaz
" -LOC	visit-POSS	during	pray

kil-abil-eceğ-imiz-den	fazla	cami	var.
do-ABLE-PART-POSS-ABL	more	mosque	there are

Sometimes, they don't:

(29) We slept in more closets than Fatoş slept in.

?(Biz)	Fatoş-un	uyu-duğ-un-dan	fazla
we	" -GEN	sleep-PART-POSS-ABL	more

dolap-ta	uyu-duk.
closet-LOC	sleep-PAST-1p

(30) I have more boxes than the cat can play in.

*(Ben-im)	kedi-nin	oyna-yabil-eceğ-in-den
I-GEN	cat-GEN	play-ABLE-PART-POSS-ABL

fazla	kutu-m	var.
more	box-POSS	there are

Apparently, there is some difficulty reconstructing the target NP's underlying case in (29) and (30) (as well as in other comparatives with oblique object targets). The primary reading for the first was 'We slept in more closets than Fatoş slept.' and for the second, 'I have more boxes than my cat can play with.'

In fact, the grammaticality of both (29) and (30) can be boosted by insuring that CD does not remove the oblique case marker. That is, the simple locative-marked target can be replaced by a post-positional phrase: *kutunun içinde* (box-GEN inside-POSS-LOC) in (30) and *dolabın içinde* (closet-GEN inside-POSS-LOC) in (29). The target of CD is now a genitive NP (e.g. *kutunun* and *dolabın*); the locative case marker associated with it is attached to the post-position and therefore, unaffected by extraction. The resulting comparatives are judged to better than (29) and (30).

(31)½?(Biz) Fatoş-un   iç-in-de   uyu-duğ-
   we   "   -GEN   inside-POSS-LOC   sleep-PART
un-dan   fazla dolab-ın   iç-in-de
POSS-ABL   more   closet-GEN   inside-POSS-ABL
uyu-duk.
sleep-PAST-1p

(32) (Ben-im) kedi-nin   iç-in-de   oyna-yabil-
   I-GEN   cat-GEN   inside-POSS-LOC   play-ABLE
eceğ-in-den   fazla kutu-m   var.
PART-POSS-ABL   more   box-POSS   there are

2.1.3.3 Ablatives

In general, it is very difficult to CD a target marked ablative, whether or not that target is the idiosyncratic ablative object of a verb as in (33) below.

(33) I loathe fewer snakes than you loathe (ABL).

(33) cont.

*(Ben)	sen-in	nefret	et-tiğ-in-den	daha az
I	you-GEN	loathe	do-PART-POSS-ABL	less

yılan-dan	nefret	ed-iyor-um.[11]
snake-ABL	loathe	do-PRES-1

(34) Ali didn't jump out of more skyscraper windows than you jumped out of.

?Ali	sen-in	atla-dığ-ın-dan	fazla
"	you-GEN	jump-PART-POSS-ABL	more

gökdelen	pencere-sin-den	atla-ma-dı.
skyscraper	window-POSS-ABL	jump-NEG-PAST

Why (33) should be so much worse than (24) where an idiosyncratic dative object has been extracted remains a mystery. It is hoped that further investigation of oblique objects will shed some light on this matter; as things stand now, it looks like the grammaticality pattern associated with extracting one type of oblique object (e.g. dative objects) is quite different from the pattern associated with another (e.g. ablative objects).

2.1.4 Subject NP's

The situation with regard to extraction of the subject of the comparative clause is quite easy to describe: such an extraction is never tolerated. Consider the following:

(35) More men ate apples than ate figs.

*Incir	ye-diğ-in-den	fazla	adam	elma	ye-di.
fig	eat-PART-POSS-ABL	more	man	apple	eat-PAST

(36) More men danced at the party than sat in the corner.

*Parti-de köşe-de otur-duk-lar-ın-dan[12]
party-LOC corner-LOC sit-PART-PLU-POSS-ABL

fazla adam danset-ti.
more man dance-PAST

(37) I invited more women than came to the party.

*(Ben) parti-ye gel-diğ-in-den fazla
I party-DAT come-PART-POSS-ABL more

kadın çağır-dım.
woman invite-PAST-1

(38) Hasan loves more girls than love him.

*Hasan kendi-sin-i sev-dik-ler-in-den
" self-POSS-ACC like-PART-PLU-POSS-ABL

fazla kız sev-iyor.
more girl love-PRES

On the basis of these facts, we might propose the following constraint:

> Subject Preservation: the target of Comparative Deletion cannot be a subject.

The validity of this constraint will be considered in greater detail below.

2.1.5 Summary

The best targets of CD are adverbs and direct objects, the worst, subject NP's. Comparatives formed on predicate adjectives are fairly consistently marginal while oblique NP's vary considerably in their ability to undergo CD.

Generally however, oblique NP's are hard to extract (they are certainly more resistant to CD than direct objects) and ablative objects are the hardest of all.

2.2 Extraction of Sub-Constituents

In the previous section, extraction of targets functioning as major constituents of the comparative clause was considered; here, I turn to extraction of targets contained in major constituents.

I will show that the Subject Preservation constraint stated above is both too strong and too weak. That is, a subject NP can undergo CD if it is contained in a non-subject and a non-subject is not as accessible as might be expected if it is contained in a major constituent which functions as subject of the comparative clause.

I will not be able to offer a replacement for Subject Preservation for the simple reason that no one principle can account for the range of facts associated with extraction of sub-constituents. What I will attempt to do is present an adequate description of those facts.

I will show that in certain circumstances (e.g. extraction of NP's embedded in clauses and sub-deletion), features of the actual target of CD are less important considerations for the grammar than features of the major constituent in which the target is embedded. In other cases, however, the operation of CD seems to be unaffected by the major constituent which contains the target. Extraction of embedded adverbs and adjectives appears to work this way, for instance.

2.2.1 NP's in Clauses

2.2.1.1 Non-Subjects

CD can reach inside a sentential object; in the following examples, its target is a non-subject embedded in such a complement. The sentences were judged to be fully grammatical. (The remainder is underlined and the sentential complement is in brackets.)

(39) You reportedly cooked more squash than I believe that Mehmet ate.

(Sen) (ben-im) [Mehmed-in ye-diğ-in-i]
you I-GEN " -GEN eat-PART-POSS-ACC

san-dığ-ım-dan fazla kabak pişir-miş-sin.[13]
believe-PART-POSS-ABL more squash cook-mIs-2

(40) More squash is growing in the garden than Orhan believes that we can eat.

Bostan-da Orhan-ın [(biz-im) yi-yebil-eceğ-
garden-LOC " -GEN we-GEN eat-ABLE-PART

imiz-i] san-dığ-ın-dan fazla kabak
POSS-ACC believe-PART-POSS-ABL more squash

yetiş-iyor.
grow-PRES

(The clausal remainder is marked as expected: a genitive suffix on the subject (ben in (39) and Orhan in (40)), participial and possessive suffixes on the verb, followed by the ablative. The sentential complement is also nominalized; additionally, it is marked accusative since it functions as the direct object of the verb sanmak ('to believe').)

Now, notice what happens when a non-subject is extracted from a sentential subject.[14] The resulting comparatives are judged to be worse than (39) and (40).

(41) Hasan can eat more squash than that Ayşe can cook (it) is likely.

?Hasan [Ayşe-nin pişir-ebil-me-sin-in[15] mümkün
" " -GEN cook-ABLE-PART-POSS-GEN likely
ol-duğ-un-dan fazla kabak yi-yebil-ir.
be-PART-POSS-ABL more squash eat-ABLE-AOR

(42) Orhan can eat more squash than that Ayşe can cook (it) is said.

?Orhan [Ayşe-nin pişir-ebil-diğ-in-in]
" " -GEN cook-ABLE-PART-POSS-GEN
söyle-n-diğ-in-den fazla kabak yi-yebil-ir.
say-PASS-PART-POSS-ABL more squash eat-ABLE-AOR

(43) More squash is growing in the garden than that Orhan can eat (it) is likely.

?Bostan-da [Orhan-in yi-yebil-me-sin-in]
garden-LOC " -GEN eat-ABLE-PART-POSS-GEN
mümkün ol-duğ-un-dan fazla kabak yetiş-iyor.
likely be-PART-POSS-ABL more squash grow-PRES

Thus, the major constituent of the comparative clause containing the target matters: non-subjects embedded in non-subject clauses extract better than those in subject clauses.

2.2.1.2 Subjects

If the Subject Preservation constraint is correct, CD should not be able to extract the subject of a sentential object. But it can. Consider the following:

(44) More people are building swimming pools than I believe can swim.

(Ben-im) [yüz-ebil-dik-ler-in-i] san-dığ-
I-GEN swim-ABLE-PART-PLU-POSS-ACC believe-PART

in-dan fazla kişi yüzme havuzu
POSS-ABL more people swimming pool

yap-tir-iyor.
build-CAUSE-PRES

(45) I talked to more women than Hasan believes came to the party.

(Ben) Hasan-in [parti-ye gel-dik-ler-
I " -GEN party-DAT come-PART-PLU-

in-i] san-dığ-in-dan fazla kadin-la
POSS-ACC believe-PART-POSS-ABL more women-COM

konuş-tum.
talk-PAST-1

Thus, Subject Preservation is too strong. A subject NP can be extracted if it's contained in a non-subject major constituent of the comparative clause.

Now consider extraction of the subject of a sentential subject.

(46) Orhan likes more women than that (they) like him is likely.

?Orhan [kendi-sin-i sev-me-ler-in-in]
" self-POSS-ACC like-PART-PLU-POSS-GEN

(46) cont.

mümkün ol-duğ-un-dan fazla kadin-dan[16]
likely be-PART-POSS-ABL more woman-ABL

hoşlan-ir.
like-AOR

This comparative was judged to be worse than (44) and (45) (where the subject of a sentential *object* was the target of CD) although considerably better than (35) through (38) where the entire subject of the comparative clause was extracted. And even more importantly, (46) is just as grammatical as (41) through (43) in which the target is a non-subject embedded in a sentential subject.

2.2.1.3 Summary

Comparatives formed on subject and non-subject NP's contained in the subject of the comparative clause are marginal; however, they are much better than those comparatives formed on the entire subject of the comparative clause.

On the other hand, subject and non-subject NP's can be readily extracted out of sentential objects. These comparatives appear to be just as good as those formed on the entire object of a comparative clause.

Given these facts, we can reject Subject Preservation: it makes the wrong prediction about subjects embedded in sentential objects and it fails to explain why objects embedded in sentential subjects extract just as poorly as subjects (in the same context).

It looks like the highest node of the comparative clause dominating the target plays a crucial role in determining that target's accessibility. Not only is the distinction between subject and non-subject extractions neutralized when those NP's are embedded in clauses but sentential subjects present more of a barrier to CD than sentential objects.

We might predict that any constituent will be less accessible to CD if the highest node dominating it corresponds to the subject of the comparative clause rather than a non-subject.

I test this prediction below.

2.2.2 Subdeletion

Subdeletion is the name given to removal of only a subpart of the compared constituent (Bresnan, 1975), usually a quantifier like element (i.e. an adverb). Subdeletion has operated in (47) below (from Bresnan, 1975).

(47) She seems as happy now as she seemed __sad before.

In Turkish, removal of an adverb attached to a non-subject NP by subdeletion results in sentences that are not quite fully grammatical.

(48) We will hire more women next year than you will hire men.

(48) cont.

?Gelecek sene, biz büroy-a siz-in erkek
future year we office-DAT you-GEN man
tut-acağ-iniz-dan fazla kadin tut-acağ-iz.
hold-PART-POSS-ABL more woman hold-FUT-1p

(literally: 'We will hold more women to the office than you will hold men.')

(49) Last night, I stole more purses than Ayşe stole wallets.

?Geçen gece, ben Ayşe-nin para kesesi
last night I " -GEN wallet
çal-diğ-in-dan fazla çanta çal-dim.
steal-PART-POSS-ABL more purse steal-PAST-1

However, comparatives in which subdeletion has operated on a subject NP are much worse.

(50) More men ate figs than women ate apples.

?*Kadin-lar-in elma ye-diğ-in-den
woman-PLU-GEN apple eat-PART-POSS-ABL
fazla adam incir ye-di.
more man fig eat-PAST

(51) More men are leaving the house than women are entering the garden.

*Ev-den bahçe-ye kadin gir-diğ-in-den
house-ABL garden-DAT woman enter-PART-POSS-ABL
fazla erkek çik-ti.
more man exit-PAST

(This sentence is impossible on the intended reading.)

These facts would seem to support the proposal made above about the importance of the highest node dominating the target in determining that target's accessibility to CD. That is, subdeletion is better when the major constituent containing the target is a non-subject as compared to a subject. (Subdeletion on a subject, furthermore, is better than deletion of the entire subject of the comparative clause although worse than deletion of an NP contained in a subject clause.)

Also of interest to the point at hand is subdeletion of elements attached to adjectives; (52) below is such a comparative:

(52) The table is longer than thedoor is wide.
?Masa kapı-nın geniş ol-duğ-un-dan daha uzun.
table door-GEN wide be-PART-POSS-ABL more long

Recall that CD of an entire adjective rated a '?' as well.

Thus, it looks like deletion of a subpart of a constituent elicits judgments that match the judgments for deletion of the entire constituent when that subpart is 1) an adverb removed by subdeletion or 2) an NP removed from a sentential complement. But the match-up is not perfect since entire subjects extract less readily than their parts.

2.2.3 NP's out of Phrases

We saw in Section 2.1.3.2 that genitive NP's in postpositional phrases could be extracted by CD. Now, we turn to genitive NP's in possessive phrases like Ayşenin yılanı (Ayşe-GEN snake-POSS: Ayşe's snake).

Although genitive NP's are very accessible to an extraction rule like Relativization (Underhill, 1972; Hankamer and Knecht, 1975), they make poor targets for CD.

(53) More girls lost their belts than (their) purses were stolen.

??Çanta-lar-ı çal-ım-dığ-ın-dan daha fazla
purse-PLU-POSS steal-PASS-PART-POSS-ABL more

kız kemer-ler-in-i kaybet-ti.[17]
girl belt-PLU-POSS-ACC lose-PAST

(54) More girls lost their belts than we found (their) purses.

??Çanta-lar-ın-ı bul-duğ-umuz-dan daha fazla
purse-PLU-POSS-ACC find-PART-POSS-ABL more

kız kemer-ler-in-i kaybet-ti.
girl belt-PLU-POSS-ACC lose-PAST

Notice that extracting a genitive NP attached to a subject as in (53) is no worse than extracting a genitive attached to a non-subject as in (54). Unlike subdeletion and Comparative Deletion of NP's in sentential comlements, the accessibility of a genitive NP does not appear to be affected by the role of the major constituent which contains it.

2.2.4 Adverbs and Adjectives out of Clauses

We might expect to find that a comparative formed on an adverb inside a sentential subject is not as good as one formed on an adverb inside a sentential object. However, there is no difference: both types are very good. In (55) and (56) the adverb target is embedded in a subject clause; in (57) and (58) it is embedded in an object clause.

(55) Fahri smokes more frequently than that Ayşe does is said.

Fahri Ayşe-nin iç-tiğ-in-in söyle-n-
" " -GEN smoke-PART-POSS-GEN say-PASS-

diğ-in-den daha sik sigara iç-er.
PART-POSS-ABL more frequently smoke-AOR

(56) I visit Ayşe less often than that Fahri does is probable.

(Ben) Ayşe-yi Fahri-nin ziyaret et-me-sin-in
I " -ACC " -GEN visit do-PART-POSS-GEN

muhtemel ol-ma-sin-dan daha az ziyaret ed-er-im.
probable be-PART-POSS-ABL less visit do-AOR-1

(57) I smoke more frequently than Engin said that Ayşe does.

(Ben) Engin-in Ayşe-nin iç-tiğ-in-i
I " -GEN " -GEN smoke-PART-POSS-ACC

söyle-diğ-in-den daha sik sigara iç-er-im.
say-PART-POSS-ABL more freq. smoke-AOR-1

(58) I visit Ayşe less often than you said that Fahri does.

(Ben) Ayşe-yi sen-in, Fahri-nin ziyaret et-tiğ-
I " -ACC you-GEN " -GEN visit do-PART-

in-i söyle-diğ-in-den daha az ziyaret ed-er-im.
POSS-ACC say-PART-POSS-ABL less visit do-AOR-1

Also notice that adjectives embedded in sentential subjects are just as extractable as adjectives embedded in sentential objects, i.e. not at all extractable.

(59) You are handsomer than that Ali is is said.

*(Sen) Ali-nin ol-duğ-un-un söyle-n-
you " -GEN be-PART-POSS-GEN say-PASS-
diğ-im-den daha yakişikli-sin.
PART-POSS-ABL more handsome-2

(60) You are handsomer than I said that Ali is.

*(Sen) (ben-im) Ali-min ol-duğ-un-u
you I-GEN " -GEN be-PART-POSS-ACC
söyle-diğ-im-den daha yakişikli-sin.
say-PART-POSS-ABL more handsome-2

Thus, extraction of non-nominals in sentential complements behaves like extraction of genitive NP's in possessive phrases and not like either subdeletion or extraction of NP's in clauses. That is, the major constituent containing the target does not play a role in determining accessibility. Adverbs extract very well no matter where they are; adjectives extract very poorly no matter what kind of a clause they are embedded in.

2.2.5 Summary

We've found the following:

- the subject of the comparative clause cannot be extracted under any circumstance; subdeletion on that subject is somewhat easier; removal of an NP (subject or object) within a sentential subject is easier yet.

- the object of the comparative clause extracts readily as does an NP (subject or object) embedded in a sentential object; subdeletion on an object is slightly marginal.
- wherever they are, adverbs make perfect targets while genitive NP's in possessive phrases and adjectives make poor targets (with major constituent adjectives extracting better than embedded adjectives).

The proposal that the subject of the comparative clause and everything in it are more untouchable than the object and everything in it can be rejected. Adverbs provide the most dramatic couterexample, being accessible to CD no matter what their location.

There are numerous unanswered questions associated with the data we've been discussing. For instance, 1) why is the grammar insensitive to the role of the major constituent containing the target when an adverb is extracted but not when an adverbial element undergoes subdeletion? 2) why is the subject of the comparative clause totally inaccessible to CD? 3) why is there a range of judgments associated with extraction of and into the subject of the comparative clause but not with extraction of and into the object? That is, what accounts for the apparent hierarchy of judgments in the subject column below?

	subject	object
∅ it entirely	*	✓
subdeletion on it	?*	?
∅ subject or object embedded in it	?	✓

2.3 Subjectless Sentences

In this section, I discuss cases of apparent extraction of the subject of the comparative clause. I argue that these sentences do not really present problems because their comparative clauses are actually subjectless by the time CD applies.

2.3.1 Impersonal Passives

The following sentences seem to counterexemplify the subject-extraction constraint. In each case, it appears that CD has extracted the subject of a passive sentence.

(61) There are more horses in Arabia than can be ridden.

Arabistan-da	bin-il-ebil-diğ-in-den	fazla
Arabia-LOC	ride-PASS-ABLE-PART-POSS-ABL	more

at	var-dir.
horse	there are-PRED

(62) More mountains have been discovered than climbed.

Tırman-il-diğ-in-dan	fazla	dağ
climb-PASS-PART-POSS-ABL	more	mountain

keşfed-il-di.
discover-PASS-PAST

(63) Fewer countries are visited than are lived in.

(63) cont.

Otur-ul-duğ-un-dan daha az ülke
live-PASS-PART-POSS-ABL less country

ziyaret ed-il-ir.
visit do-PASS-AOR

(64) More people came than were helped.

Yardim ed-il-diğ-in-den fazla insan
help do-PASS-PART-POSS-ABL more people

gel-di.
come-PAST

But consider what the comparative clauses in (61) through (64) look like in isolation, before the application of CD:

(61') Horses can be ridden.

At-lar-a bin-il-ebil-ir.
horse-PLU-DAT ride-PASS-ABLE-AOR

(62') Mountains have been climbed.

Dağ-lar-a tirman-il-di.
mountain-PLU-DAT climb-PASS-PAST

(63') Countries are lived in.

Ülke-ler-de otur-ul-ur.
country-PLU-LOC live-PASS-AOR

(64') People were helped.

İnsan-lar-a yardim ed-il-di.
people-DAT help do-PASS-PAST

Breckenridge (1975) has argued that such sentences lack derived subjects. Given any tests for subjecthood, NP's in these 'impersonal passives' fail to pass them. For instance,

- they don't trigger verb agreement

(65) Mountains have been climbed.

Dağ-lar-a tırman-ıl-dı/*tırman-ıl-dı-lar.
mt.-PLU-DAT climb-PASS-PAST/*climb-PASS-PAST-PLU

- they are not marked nominative (ø in Turkish)

(66) Horses can be ridden.

At-lar-a/*at-lar bin-il-ebil-ir.
horse-PLU-DAT/horse-PLU ride-PASS-ABLE-AOR

- they don't undergo subject-to-object raising

(67) İlteris believes horses can be ridden.

*İlteriş at-lar-ı/at-lar-a bin-il-
" horse-PLU-ACC/horse-PLU-DAT ride-PASS-

ebil-ir san-ıyor.
able-AOR believe-PRES

- they cannot be deleted by Equi

(68) Ali wants to be ridden.

*Ali bin-il-mek iste-di.
" ride-PASS-INFIN want-PAST

Thus, the grammaticality of (61) through (64) does not present a problem for the subject-extraction constraint since none of the NP's in the comparative clauses qualify as subjects. Instead, a locative NP has been extracted in (63), a dative NP in the others.

Below, I look at sentences with generic direct objects and show how the subject-extraction constraint can be used to provide additional support for a claim about their passivization.

2.3.2 Generic Direct Objects

The passive sentence given in (69) below is ambiguous, with *kabak* interpreted either as generic 'squash' or non-generic 'the squash'.

(69) Squash/the squash was eaten.
Kabak ye-n-di.
squash eat-PASS-PAST

(69) is related to the following two active sentences:

(70) Pro ate squash.
Pro kabak ye-di.
squash eat-PAST

(71) Pro ate the squash.
Pro kabağ-ı ye-di.
squash-ACC eat-PAST

In (70), *kabak* lacks an accusative marker; it is interpreted as a generic object and cannot be displaced from immediate pre-verbal position as the following shows.

(70') Hasan ate squash yesterday.
(Dün) Hasan kabak (*dün) ye-di.
yesterday " squash yesterday eat-PAST

In (71), the direct object is case-marked and interpreted as definite and specific. It enjoys freedom of movement:

(71') Hasan ate the squash yesterday.
(Dün) Hasan kabağ-ı (dün) ye-di.
yesterday " squash-ACC yesterday eat-PAST

Facts like the above have been taken as evidence that generic direct objects in Turkish undergo incorporation with their verbs.

Jorge Hankamer (class, 1974) observed that the passive version of a sentence like (71) but not (70) acts like it has a subject. For example, reconsider (69), which is ambiguous between the generic and non-generic readings:

(69) Squash/the squash was eaten.

Kabak	ye-n-di.
squash	eat-PASS-PAST

If an adverb is positioned before the verb, the ambiguity disappears: only the non-generic reading of kabak is possible:

(72) It was yesterday that the squash (*squash) was eaten.

Kabak	dün	ye-n-di.
squash	yesterday	eat-PASS-PAST

This fact can be accounted for straightforwardly if generic object incorporation precedes passive. With this ordering, we insure that there is no object in the active sentence (70) capable of being promoted subject by passive. Consequently, the passive version of (70) must be an impersonal passive. On the other hand, the non-generic direct object in (71) does become a derived subject in the passive construction.

Hankamer also noticed that subject-to-object raising can only apply to kabak in the passive version of (71).

(73) I believe the squash (*squash) to have been eaten.

Kabağ-ı ye-n-di san-ıyor-um.
squash-ACC eat-PASS-PAST believe-PRES-1

If the generic NP in the passive of (70) were actually a derived subject, there would be nothing to stop it from undergoing raising and the above sentence would be ambiguous.

Thus, scrambling and raising provide evidence that certain passive sentences are ambiguous between a subjectless impersonal passive and a subjectful personal passive. Further justification for this analysis comes from comparatives.

If kabak is not the derived subject of the passive of (70), then it should be able to undergo Comparative Deletion. However, if it is a subject, the subject-extraction constraint will block its deletion. Since the following sentence is grammatical, the target of CD could not have been a subject.

(74) Ayşe cooked more squash than could be eaten.

Ayşe ye-n-ebil-eceğ-in-den fazla
" eat-PASS-ABLE-PART-POSS-ABL more

kabak pişir-di.
squash cook-PAST

Subdeletion provides a second piece of evidence that kabak in the passive version of a sentence like (70) is not a subject. Notice that the following sentence is grammatical:

(75) More eggplant was eaten today than squash was eaten yesterday.

Bugün,	dün	kabak	ye-n-diğ-in-den
today	yesterday	squash	eat-PASS-PART-POSS-ABL

fazla	patlícan	ye-n-di.
more	eggplant	eat-PASS-PAST

Recall that comparatives in which subdeletion has applied to a subject NP are very bad. However, when an object undergoes subdeletion, the resulting comparative never rates anything worse than '?'. (See Section 2.2.2 for subdeletion judgments.)

Thus, there is evidence from scrambling, raising, Comparative Deletion, and subdeletion that the passive version of a sentence with a generic object is an impersonal passive.[18]

2.3.3 Subject Demotion

In a recent paper (1975), Hankamer and Knecht discuss sentences like the following:

(76) Wine is flowing under the door.

Kapí-nín	alt-ín-dan	şarap	ak-íyor.
door-GEN	bottom-POSS-ABL	wine	flow-PRES

(77) The wine is flowing under the door.

Şarap	kapí-nín	alt-ín-dan	ak-íyor.
wine	door-GEN	bottom-POSS-ABL	flow-PRES

We argue that in intransitive sentences with directional or locational phrases and indefinite, non-specific subjects in immediate pre-verbal position, a subject-demotion rule has applied.[19] What this rule does is deprive a subject NP of subjecthood (without creating a new subject). Demotion has occured in (76) but not in (77) (where the subject is interpreted as definite). This analysis was proposed in order to account for the fact that the rule of relativization in Turkish treats (76) like other sentences which can be shown to lack subjects (e.g. impersonal passives).

Independent support for the existence of a rule of subject-demotion in Turkish comes from Comparative Deletion. It has been established that the subject of the comparative clause cannot be extracted. Thus, if şarap in (76) is a subject, it will not undergo CD. As the following sentence demonstrates, şarap can serve as the target of CD. It cannot, therefore, be a subject.

(78) More wine flowed onto the floor than flowed under the door.

Yer-in	üzer-in-e	kapɨ-nɨn	alt-ɨn-dan
floor-GEN	top-POSS-DAT	door-GEN	bottom-POSS-ABL

ak-tɨğ-ɨn-dan	fazla	şarap	ak-tɨ.
flow-PART-POSS-ABL	more	wine	flow-PAST

All of the following are fully grammatical as well. The comparative clause in each sentence meets the conditions for application of the subject-demotion rule.

(79) More enemies entered the harbor than entered the fortress.

Kale-ye lıman-ın iç-in-e
fortress-DAT harbor-GEN inside-POSS-DAT

gir-diğ-in-den fazla düşman gir-di.
enter-PART-POSS-ABL more enemy enter-PAST

(80) More grass is growing on top of the roof than is growing in the garden.

Dam-ın üzer-in-de bahçe-nin iç-
roof-GEN top-POSS-LOC garden-GEN inside-

in-de bit-tiğ-in-den fazla çimen
POSS-LOC grow-PART-POSS-ABL more grass

bit-iyor.
grow-PRES

(81) More boats are passing under the Bosphorus bridge than are passing under the bridge of the Golden Horn.

Boğaz köprü-sün-ün alt-ın-dan
Bosphorus bridge-POSS-GEN bottom-POSS-ABL

Haliç köprü-sün-ün alt-ın-dan
Gold Horn bridge-POSS-GEN bottom-POSS-ABL

geç-tiğ-in-den fazla gemi geç-er.
pass-PART-POSS-ABL more boat pass-AOR

Thus, Comparative Deletion confirms the analysis suggested by the behavior of Relativization. The comparative clauses in (78) through (81) are subjectless by the time CD applies and, in each case, a former subject has been extracted.

2.3.4 Summary

In this section, potential counterexamples to the subject-extraction constraint were considered but no authentic ones were discovered. Further research may, of course, unearth them. Nevertheless, the subject-extraction constraint has emerged as a useful negative test of subjecthood: if an NP is accessible to CD, it cannot be a subject. (If an NP doesn't extract, it is not necessarily a subject, of course. See Section 2.1.3.3, for example, for the non-accessibility of ablative objects.)

Additionally, we observed a mutually helpful interplay among rules, constraints, and proposed syntactic analyses. The subject-demotion rule, needed to account for certain facts about Relativization, turned out to be necessary to explain the operation of CD as well. The behavior of generic object passives with regard to raising and scrambling suggested an analysis which was absolutely compatible with their behavior when embedded as comparative clauses.

3. Comparative Ellipsis

In this section, I argue that phrasal comparatives are not base-generated and furthermore that the ellipsis rule that derives them from clausal comparatives is unique to comparative constructions.

3.1 The Base v. an Ellipsis Rule

Consider the proposal that the remainder of a phrasal comparative is base-generated. What this entails is that the remnant NP was never part of a full clause, subsequently punctured by Comparative Deletion. That is, it denies that clausal comparatives underlie phrasal comparatives. Obviously, the theory that posits an ellipsis rule asserts the opposite: phrasal comparatives do have a clausal source.

It is fairly clear what sorts of facts are needed to decide between the two hypotheses. Finding that the restrictions on clausal comparatives are unrelated to the restrictions on phrasals, i.e. that their grammaticality patterns do not match, could be taken as support for the Base Hypothesis. However, finding that constraints on CD in clausal comparatives are preserved in phrasals, i.e. that a given phrasal is out (or in) for the same reason that the corresponding clausal is out (or in) would constitute evidence in favor of the Ellipsis Hypothesis.[20]

So it comes down to this: is there a correlation between phrasal and clausal comparatives?

The answer is 'yes'. Recall that there is a constraint on CD to the effect that the rule cannot extract the subject of the comparative clause, as below.

(82) More men ate apples than ate figs.
*Incir ye-diğ-in-den fazla adam elma ye-di.
fig eat-PART-POSS-ABL more man apple eat-PAST

Now notice that the phrasal comparative corresponding to (82) is just as bad.

(83) More men ate apples than figs.
*Incir-den fazla adam elma ye-di.
fig-ABL more man apple eat-PAST

The ungrammaticality of (83) is automatically explained under the Ellipsis Hypothesis since this phrasal comparative must derive from a full clausal comparative in which CD has operated illegally. We need only state the subject-extraction constraint once; if it's violated, disastrous effects will be seen in both phrasal and clausal comparatives since the only difference between the two is application of an optional ellipsis rule in the derivation of the former.

On the other hand, the correspondance between (82) and (83) is exactly the sort of thing the Base Hypothesis cannot account for. More precisely, under the Base Hypothesis, the subject-extraction constraint will not suffice to rule out both comparatives and an independent explanation must be sought for the ungrammaticality of (83).

3.1.1 Squirm 1

That explanation might take the following form: the NP in a phrasal remainder cannot be interpreted as a non-subject. That is, (83) only has the deviant reading, 'More men ate apples than figs did'.

However, the following sentence is perfectly fine with the remainder interpreted as a non-subject:

(84) I like apples better than figs.
Incir-den fazla elma sev-er-im.
fig-ABL more apple like-AOR-1

The suggested addendum to the Base Hypothesis cannot help incorrectly ruling out (84) as well as (83). But the Ellipsis Hypothesis can since (84) is derived from a well-formed clausal in which CD has extracted an adverb:

(85) I like apples better than I like figs.
Incir sev-diğ-im-den fazla elma sev-er-im.
fig like-PART-POSS-ABL more apple like-AOR-1

3.1.2 Squirm 2

In attempting to rule out 'More men ate apples than figs' (83) while permitting 'I like apples better than figs' (84), the Base Hypothesis might propose the following constraint: throw out any comparative in which the compared constituent in the controlling clause is a subject and the NP in the phrasal remainder is interpreted as a non-subject. The constraint has an ad hoc flavor but it appears to work.

Nevertheless, it has the following flaw: it utterly fails to relate the ungrammaticality of the phrasal 'More men ate apples than figs' to the ungrammaticality of the clausal 'More men ate apples than ate figs' (82). Surely, we would prefer a theory which needed only one principle to throw out both comparatives.

The following constraint, which is a restatement of the one given above, can do just that: throw out a comparative in which the compared constituent in the controlling clause is a subject and any NP's in the remainder are interpreted as non-subjects. However, the sentence given below is ungrammatical andthe constraint cannot rule it out:

(86) I invited more women than came to the party.

*Parti-ye gel-dik-ler-in-den fazla
party-DAT come-PART-PLU-POSS-ABL more

kadın çağır-dım.
woman invite-PAST-1

Under the Ellipsis Hypothesis, the ungrammaticality of (86) is easily accounted for: the subject-extraction constraint has been broken.

The following sentences pose an even greater problem for the Base Hypothesis and its constraint. In both, the trigger of CD is a subject while the NP's (if any) in the remainder are non-subjects. Though predicted to be ungrammatical, (87) (formerly (61)) and (88) (formerly (63)) are perfectly good.

(87) There are more horses in Arabia than can be ridden.

(87) (cont.)

Arabistan-da	bin-il-ebil-diğ-in-den	
Arabia-LOC	ride-PASS-PART-POSS-ABL	
fazla	at	var-dɨr.
more	horse	there are-PRED

(88) More people came than were helped.

Yardɨm	ed-il-diğ-in-den	fazla	insan	gel-di.
help	do-PASS-PART-POSS-ABL	more	people	come-PAST

Recall that the comparative clauses in (86) and (87) are subjectless at the point when CD applies; that is, they are impersonal passives. (See Section 2.3.1) Under the Ellipsis Hypothesis, then, the subject-extraction constraint is not called into play. However, the constraint required in the framework of the Base Hypothesis does apply, incorrectly ruling out the grammatical sentences.

In conclusion, the Base Hypothesis either makes the wrong predictions or loses a generalization which the Ellipsis Hypothesis can capture, i.e. the generalization that violations of constraints on CD in clausal comparatives are preserved in the corresponding phrasals.

We can consequently reject the Base Hypothesis.

3.2 The Correlation between Clausals and Phrasals

At this point, I will systematically look at pairs of clausal and phrasal comparatives and demonstrate that the match-up is perfect for some, imperfect for others. Even where the match is imperfect, there is clearly a correlation between the clausal and its corresponding phrasal.

In order to cut down on extraneous factors, I have constructed the phrasal comparatives so that their remainders can be interpreted as subjects (where possible).

3.2.1 Adverbs, Direct Objects, and Subjects

Clausal comparatives with extracted adverbs seem to be just as good as their phrasal counterparts.

(89) This plane flies to Ankara less often than the other one (does).

a.	clausal:	Bu	uçak	Ankara-ya	öbürün-ün
		this	plane	" -DAT	other-GEN

uç-tuğ-un-dan	daha seyrek	uç-ar.
fly-PART-POSS-ABL	more seldom	fly-AOR

b.	phrasal:	Bu	uçak	Ankara-ya	öbürün-den
		this	plane	" -DAT	other-ABL

daha	seyrek	uç-ar
more	seldom	fly-AOR

(90) I visit Ayşe more than Hasan (does).

a.	Ayşe-yi	Hasan-ın	ziyaret	et-tiğ-in-den
	" -ACC	" -GEN	visit	do-PART-POSS-ABL

fazla	ziyaret	ed-er-im.
more	visit	do-AOR-1

b.	Ayşe-yi	Hasan-dan	fazla	ziyaret	ed-er-im.
	" -ACC	" -ABL	more	visit	do-AOR-1

Similarly, the pattern for clausal comparatives formed on direct objects looks just like the pattern for phrasals.

(91) I gave less money to Orhan than Ali (did).

a.	Orhan-a	Ali-nin	ver-diğ-in-den
	" -DAT	" -GEN	give-PART-POSS-ABL

daha az	para	ver-dim.
less	money	give-PAST-1

(91) (cont.)

b. Orhan-a Ali-den daha az para ver-dim.
" -DAT " -ABL less money give-PAST-1

(92) İlteriş reads more books in the morning than Mehmet (does).

a. İlteriş sabahlarɨ Mehmed-in oku-duğ-
" mornings " -GEN read-PART

un-dan fazla kitap ok-ur.
POSS-ABL more book read-AOR

b. İlteriş sabahlarɨ Mehmet-ten fazla kitap
" mornings " -ABL more book

ok-ur.
read-AOR

Furthermore, there is a perfect correlation between clausals with extracted subjects and their phrasal counterparts as we saw earlier.

(93) More girls lost belts than (lost) purses.

a. *Çanta kaybet-tik-ler-in-den fazla kɨz
purse lose-PART-PLU-POSS-ABL more girl

kemer kaybet-ti.
belt lose-PAST

b. *Çanta-dan fazla kɨz kemer kaybet-ti.
purse-ABL more girl belt lose-PAST

(94) More girls kissed Orhan than (kissed) Hasan.

a. *Hasan-ɨ öp-tüğ-un-den fazla kɨz
" -ACC kiss-PART-POSS-ABL more girl

Orhan-ɨ öp-tü.
" -ACC kiss-PAST

b. *Hasan-dan fazla kɨz Orhan-ɨ öp-tü.
" -ABL more girl " -ACC kiss-PAST

3.2.2 Adjectives

We saw in Section 2.1.1 that extraction of adjectives by CD was not perfect. However, the phrasal comparative version is usually fully grammatical.[21]

(95) The apple is juicier than the pear (is).

a.

?Elma	armud-un	ol-duğ-un-dan	daha	sulu.
apple	pear-GEN	be-PART-POSS-ABL	more	juicy

b.

Elma	armut-tan	daha	sulu.
apple	pear-ABL	more	juicy

We might account for this difference by assuming that, where a choice exists, there is a clear preference for not using the copular verb olmak (to be).

3.2.3 Oblique NP's

The pattern for clausal and phrasal comparatives formed on oblique NP's seems to be just the opposite of the one noted for adjectives: the phrasals are usually one notch worse than the corresponding clausals. Consider, for instance, pairs with dative NP's extracted:

(96) I'm going to ride more horses in one day than Ayşe (will in one week).

a.

?Bir günde,	Ayşe-nin	bir	hafta	boyunca
one day	" -GEN	one	week	during
bin-diğ-in-den		fazla	at-a	bin-eceğ-im.
ride-PART-POSS-ABL		more	horse-DAT	ride-FUT-1

b.

??Bir günde,	Ayşe-den	fazla	at-a	bin-eceğ-im.
one day	" -ABL	more	horse-DAT	ride-FUT-1

(97) I'm going to give figs to more children today than Orhan (did).

a.??Bugün, Orhan-ın ver-diğ-in-den fazla
today " -GEN give-PART-POSS-ABL more

çocuğ-a incir ver-eceğ-im.
child-DAT fig give-FUT-1

b. *Bugün, Orhan-dan fazla çocuğ-a incir
today " -ABL more child-DAT fig

ver-eceğ-im.
give-FUT-1

Locatives work the same way:

(98) We slept in more closets than Fatoş (did).

a. ?Biz Fatoş-un uyu-duğ-un-dan fazla
we " -GEN sleep-PART-POSS-ABL more

dolap-ta uyu-duk.
closet-LOC sleep-PAST-1p

b. *Biz Fatoş-tan fazla dolap-ta uyu-duk.
we " -ABL more closet-LOC sleep-PAST-1p

(99) Until now, I have lived in more countries than Engin (will ever be in during his life).

a. ?Şimdiye kadar Engin-in ömr-ü boyunca
until now " -GEN life-POSS during

bulun-acağ-ın-dan fazla ülke-de yaşa-dım.
be-PART-POSS-ABL more country-LOC live-PAST-1

b.??Şimdiye kadar Engin-den fazla ülke-de
until now " -ABL more country-LOC

yaşa-dım.
live-PAST-1

And so do ablatives apparently:

(100) Ali didn't jump out of more skyscraper windows than you did.

(100) (cont.)

a. ?Ali sen-in atla-dɨğ-ɨn-dan fazla
" you-GEN jump-PART-POSS-ABL more

gökdelen pencere-sin-den atla-ma-dɨ.
skyscraper window-POSS-ABL jump-NEG-PAST

b.??Ali sen-den fazla gökdelen
" you-ABL more skyscraper

pencere-sin-den atla-ma-dɨ.
window-POSS-ABL jump-NEG-PAST

I have found no cases of clausal comparatives with extracted oblique objects that were worse than their phrasal counterparts. It seems likely that these facts are representative but I will not attempt to explain them here.

Even though the relationship between clausal and phrasal comparatives is not completely understood, the very fact that a relationship exists and that it is systematic is highly significant. That is, it counts as additional support for the Ellipsis Hypothesis over the Base Hypothesis. The former predicts correlations between grammaticality patterns; the latter treats such correlations as accidents.

3.3 A General Ellipsis Rule or a Comparative Ellipsis Rule?

We argued above that phrasal comparatives were derived from clausal comparatives by means of an ellipsis rule. But exactly what kind of ellipsis rule is it: a general ellipsis rule or one unique to comparative constructions?

In order to answer this question, I will investigate the properties of clausal comparatives which have only been partially reduced by ellipsis, that is, sentences like (101) below which is equivalent to the fuller version in (102).

(101) I visit Ayşe more than Hasan does.

Ayşe-yi	Hasan-ın	ziyaret	et-tiğ-in-den
" -ACC	" -GEN	visit	do-PART-POSS-ABL
daha sık	ziyaret	ed-er-im	
more often	visit	do-AOR-1	

(102) I visit Ayşe more often than Hasan visits Ayşe.

Ayşe-yi	Hasan-ın	Ayşe-yi	ziyaret	et-tiğ-
" -ACC	" -GEN	" -ACC	visit	do-PART-
in-den	daha sık	ziyaret	ed-er-im.	
POSS-ABL	more often	visit	do-AOR-1	

The second occurence of Ayşeyi has been removed in (101). If ellipsis wiped out not only this NP but also the verb of the comparative clause, a true phrasal comparative would result:

(103) I visit Ayşe more than Hasan.

Ayşe-yi	Hasan-dan	daha sık	ziyaret	ed-er-im.
" -ACC	" -ABL	more often	visit	do-AOR-1

3.3.1 Relative Clauses and Ellipsis

If the rule that deletes elements in the comparative clause under identity with elements in the controlling clause is a general rule of Turkish grammar, then we would expect it to apply between a controlling clause and a relative clause (which is structurally quite similar to a comparative clause).

So, consider the following sentence containing two occurences of a dative NP, one in a relative clause (underlined).

(104) You sold to Ayşe the cat that I wanted to give to Ayşe.

Sen	Ayşe-ye	ben-im	Ayşe-ye	vermek
you	" -DAT	I-GEN	" -DAT	give-INFIN

iste-diğ-im	kedi-yi	sat-tın.[22]
want-PART-POSS	cat-ACC	sell-PAST-2

Dropping the second Ayşeye yields a sentence that can only mean 'You sold the cat to Ayşe that I wanted to give away'. That is, we don't get the reading we expect if ellipsis could operate. But notice that if a second occurence of a dative NP is removed from a comparative clause, the resulting sentence has the same interpretation as the full comparative:

(105) I gave less money to Orhan

a. than Hasan gave to Orhan.

Orhan-a	Hasan-ın	Orhan-a	ver-diğ-
" -DAT	" -GEN	" -DAT	give-PART

daha az	para	ver-dim.
less	money	give-PAST-1

= b. than Hasan gave Ø.

Orhan-a	Hasan-ın	Ø ver-diğ-in-den
" -DAT	" -GEN	give-PART-POSS-ABL

(105)b. (cont.)

daha az	para	ver-dim.
less	money	give-PAST-1

Similarly, notice the contrast between a relative clause and a comparative clause in which a repeated accusative NP has been wiped out.

(106) I gave my son to a woman

a. who really loves him.

Oğl-um-u	kendi-sin-i	gerçekten
son-POSS-ACC	self-POSS-ACC	from truth

sev-en	bir	kadın-a	ver-dim.
love-PART	a	woman-DAT	give-PAST-1

≠ b. who really loves Ø.

Oğl-um-u	Ø	gerçekten	sev-en
son-POSS-ACC		from turth	love-PART

bir	kadın-a	ver-dim.
a	woman-DAT	give-PAST-1

(107) I love Hasan more

a. than Ayşe loves Hasan.

Hasan-ı	Ayşe-nin	Hasan-ı	sev-diğ-
" -ACC	" -GEN	" -ACC	love-PART-

in-den	fazla	sev-iyor-um.
POSS-ABL	more	love-PRES-1

* b. than Ayşe loves Ø.

Hasan-ı	Ayşe-nin	Ø	sev-diğ-in-den
" -ACC	" -GEN		love-PART-POSS-ABL

fazla	sev-iyor-um.
more	love-PRES-1

The reduced relative clause does not have the reading of the full relative clause (if it has any reading at all). However, the reduced comparative does receive the same interpretation as the full version.

Additionally, ellipsis of adverbs is possible in comparative clauses but not in relative clauses. Thus in (108), the (b) sentence has (a) as a possible reading but this is not true of the sentences in (109).

(108) I sent more letters to Ayşe yesterday

a. than Hasan sent to Orhan yesterday.

Dün	Ayşe-ye	Hasan-ɨn	Orhan-a	dün
yesterday	" -DAT	" -GEN	" -DAT	yes.
gönder-diğ-in-den	fazla	mektup	gönder-dim.	
send-PART-POSS-ABL	more	letter	send-PAST-1	

= b. than Hasan sent to Orhan Ø.

Dün	Ayşe-ye	Hasan-ɨn	Orhan-a	Ø
yesterday	" -DAT	" -GEN	" -DAT	
gönder-diğ-in-den	fazla	mektup	gönder-dim.	
send-PART-POSS-ABL	more	letter	send-PAST-1	

(109) Yesterday Engin met the man

a. who married Ayşe yesterday.

Dün	Engin	Ayşe-yle		dün
yesterday	"	"	-COMITATIVE	yesterday
evlen-en	adam-a	rastla-dɨ.		
marry-PART	man-DAT	meet-PAST		

≠ b. who married Ayşe Ø.

Dün	Engin	Ayşe-yle	Ø	evlen-en
yesterday	"	" -COM		marry-PART
adam-a	rastla-dɨ.			
man-DAT	meet-PAST			

These facts lead to the obvious conclusion that comparative clauses are partially reduced or pared down to a single NP by a rule of Comparative Ellipsis specific to comparative clauses rather than by a rule that has general application. This is also the case in English.

4. Theoretical and Universal Consequences

4.1 Summary

The major conclusions reached in previous sections are as follows:

- There is a constraint on Comparative Deletion which blocks extraction of the subject of the comparative clause.
- Furthermore, there is a hierarchy of accessibility to CD:

  ✓ adverbs (anywhere); direct objects; subjects or objects in sentential objects

  adverbial elements attached to direct objects; adjectives and attached adverbials; subjects and objects in a sentential subject; oblique objects

  genitive NP's in possessive phrases

  ↓ adverbial elements attached to the subject of the comparative clause

  * the subject of the comparative clause

  It is very likely that several different factors are involved in these judgments.
- Turkish has a rule of Comparative Ellipsis whose application is restricted to comparative constructions. If CE removes the verb of the comparative clause, there must be exactly one NP left over for the ablative suffix to attach to.
- Oblique objects make worse targets of CD (and worse phrasal remainders; see Appendix I) than non-oblique

objects.

- Although CD cannot extract the subject of the comparative clause, it can extract a former subject, i.e. an NP demoted by subject-demotion. Furthermore, subjectless comparative clauses are well-formed if their subjectlessness is due to the application of (impersonal) passivization or subject-demotion rather than CD.

4.2 Consequences for Turkish

Like Comparative Deletion, Relativization in Turkish is controlled by a head and operates backwards over a variable to delete a target in themodifying clause. Given these similarities, we might expect the two rules to obey the same constraints. But they do not.

First of all, it must be noted that there are two nominalization patterns for relative clauses. (See Hankamer and Knecht, 1975 for more details.) One, the so-called 'object participle construction' is identical to the one used in comparative clauses: a genitive suffixed to the subject, a participial and possessive suffix attached to the verb (where the latter agrees with the subject in person and number). In the simple cases, the object participle construction is employed when a non-subject is relativized. For instance,

(110) the woman that I liked

ben-im	sev-diğ-im	kadɨn
I-GEN	like-PART-POSS	woman

The other construction is termed the 'subject participle construction' and as the name implies, it is generally used when the subject of the relative clause is the relative target. This nominalization pattern involves simply attaching a participial suffix to the verb. For instance,

(111) the woman who loves Mehmet

Mehmed-i	sev-en	kadın
" -ACC	love-PART	woman

One difference between Relativization and Comparative Deletion is immediately obvious: there is no subject-extraction constraint for the former.

Another difference has to do with the behavior of subconstituents contained in major constituents of the relative/comparative clause. Hankamer and Knecht (1975) have shown that subconstituents relativize exactly in the manner that is appropriate for relativization of the major constituents which contain them (the Mother Node Principle). That is, all NP's contained in the subject of the relative clause relativize with the subject participle construction while all NP's contained in non-subjects relativize with the object participle construction.

The Mother Node Principle cannot be extended to Comparative Deletion. Recall that NP's contained in the subject of the comparative clause undergo CD much more readily than the subject itself. Moreover, adverbs are readily extracted no matter what the accessibility of the highest node that dominates them in the comparative clause.

A third difference shows up in thetreatment of subjectless sentences. Any NP contained in an impersonal passive or a sentence in which subject-demotion has applied relativizes with the subject participle construction. In other words, Relativization lumps NP's in subjectless sentences together with subject NP's. If comparatives worked the same way, we would have found that NP's in subjectless sentences were not accessible to CD; that is, the grammar would treat them just like it treats the subject of the comparative clause, whose extraction is not permitted.

It would be interesting to see how many of the differences between Relativization and Comparative Deletion can be explained by reference to the existence of an extra nominalization pattern for relative clauses. It would also be of interest to investigate the properties which these two unbounded deletion rules share.

4.3 Universally

4.3.1 Accessibility

In their paper "Noun Phrase Accessibility and Universal Grammar", Keenan and Comrie (1972) argue that there is a hierarchy of accessibility to Relativization "as well as to other 'focusing' operations like WH-QUESTION and

CLEFT". The hierarchy has the following form (where ≥ means 'greater than or equal to in accessibility').

Subject ≥ DO ≥ IO ≥ Obj of Prep ≥ Possessor NP ≥ Obj Comp Part

The hierarchy is claimed to be universal[23] although particular languages can draw lines at different points within the hierarchy. Thus in Malagasy, Relativization is restricted to subjects; in Basque, subjects, direct objects and indirect objects can be extracted. The Accessibility Hierarchy embodies the claim that there is no language in which, for instance, direct objects relativize but subjects do not.

Although Keenan and Comrie did not make the proposal that the accessibility of NP's to Comparative Deletion was governed by their hierarchy, such a proposal could be entertained (especially in the absense of a clear definition of 'focusing operations'). However, once entertained, the proposal can be rejected. The accessibility hierarchy needed for CD in Turkish is significantly different from Keenan and Comrie's. It looks roughly like the following:[24]

DO ≥ Oblique Object ≥ Possessor NP ≥ Subject

Turkish is a language in which direct objects, but not subjects, are accessible to CD. This is a state of affairs deemed impossible for Relativization.

Even this particular hierarchy is much too crude. It cannot handle the facts about embedded targets, for instance. Recall that a direct object extracts more readily out of an object complement than a subject complement, that subject NP's are, in general, more accessible when embedded and in particular, totally accessible when embedded in a sentential object.

Thus, any attempt to extend the domain of Keenan and Comrie's Accessibility Hierarchy from so-called focusing operations to the class of extraction rules which includes CD is bound to fail given the facts about Turkish.

4.3.2 Ellipsis

It has been claimed (Hankamer, 1971) that ellipsis rules universally operate from left to right. This is apparently true of English but it cannot be maintained for Turkish. That is, if Turkish has a rule of Comparative Ellipsis as I have argued, then it must be allowed to operate backwards.

Ellipsis of verbs provides the clearest case of backwards application. Except for special discourse circumstances, the verb in a Turkish sentence occupies final position. For the verb of the comparative clause to be deleted under identity with an upstairs verb, ellipsis has to operate from right to left.

There are also occasions when CE applies forward, for instance, in deleting the repeated occurence of an accusative NP in the following example.

(112) I love this pig more than Fatoş loves this pig ⟶
I love this pig more than Fatoş does.

(Ben) bu domuz-u Fatoş-un bu domuz-u
I this pig-ACC " -GEN this pig-ACC

sev-diğ-in-den fazla sev-iyor-um ⟶
love-PART-POSS-ABL more love-PRES-1

(Ben) bu domuzu Fatoşun Ø sevdiğinden fazla
seviyorum.

We would like to know if there are bi-directional ellipsis rules in other languages and if so, what common features these languages share. Perhaps word order is the crucial factor and we will find SOV but not SVO languages that allow backwards ellipsis. This is an eminently testable hypothesis which deserves some looking into.

Appendix I

Properties of the Phrasal Remainder

The targets of Comparative Deletion have been looked at fairly systematically as has the relationship between clausal and phrasal comparatives. However, there has been no discussion of what kind of NP can be stranded in the phrasal remainder by CE. (Recall that in Section 3.2 where clausals were compared with their corresponding phrasals, I arranged things so that the NP in the phrasal remainder was an underlying subject.)

Here I show that subjects and direct objects tend to make better remainders than oblique objects. A similar breakdown has been noted before: direct objects also make better targets of CD than oblique objects.

All the sentences presented below have adverbs extracted by CD. In this way, we can concentrate just on the differences between types of phrasal remainders and not worry about the complex interaction between CD and CE.

Subjects and Direct Objects

An underlying subject seems to make the best phrasal remainder. In fact, where there is ambiguity about the interpretation of the remainder as in a sentence like 'Ali hates Sally more than Sue', the subject reading is primary (e.g. 'Ali hates Sally more than Sue does.') Examples of clausal and phrasal comparatives with stranded former subjects follow.

(1) I read the book more carefully than Ali (did).

a. Clausal: Kitab-ı Ali-nin oku-duğ-
book-ACC " -GEN read-PART-
un-dan daha dikkatlice oku-dum.
POSS-ABL more carefully read-PAST-1

b. Phrasal: Kitab-ı Ali-den daha
book-ACC " -ABL more
dikkatlice oku-dum.
carefully read-PAST-1

(2) Fahri smokes more often than Ayşe (does).

a. Fahri Ayşe-nin iç-tiğ-in-den daha
" " -GEN smoke-PART-POSS-ABL more
sık sigara iç-er.
often smoke-AOR

b. Fahri Ayşe-den daha sık sigara iç-er.
" " -ABL more often smoke-AOR

A phrasal remainder may also contain an underlying direct object:

(3) Hasan brushes the horse more often than (he brushes) the donkey.

a. Hasan at-ı eşeğ-i tımar et-tiğ-
" horse-ACC donkey-ACC brush do-PART-
in-den daha sık tımar ed-er.
POSS-ABL more often brush do-AOR

b. Hasan at-ı eşek-ten daha sık
" horse-ACC donkey-ABL more often
tımar ed-er.
brush do-AOR

(4) I like the pear better than (I like) the apple.

a. Armud-u (ben-im) elma-yı sev-diğ-im-den
pear-ACC I-GEN apple-ACC like-PART-POSS-ABL

(4)a. (cont.)

fazla	sev-dim.
more	like-PAST-1

b.

Armud-u	elma-dan	fazla	sev-dim.
pear-ACC	apple-ABL	more	like-PAST-1

Oblique Objects

Idiosyncratic dative objects of verbs seem to make better phrasal remainders than directional or recipient datives. Compare the following:

(5) You resemble your father more than (you resemble your mother (DAT).

a.

Baba-n-a	anne-n-e	benze-diğ-
father-POSS-DAT	mother-POSS-DAT	resemble-PART-

in-den	fazla	benz-iyor-sun.
POSS-ABL	more	resemble-PRES-2

b.

Baba-n-a	anne-n-den	fazla
father-POSS-DAT	mother-POSS-ABL	more

benz-iyor-sun.
resemble-PRES-2

(6) İlteriş goes to Ankara more often than (he goes) to Istanbul.

a.

İlteriş	Ankara-ya	İstanbul-a	git-tiğ-
"	" -DAT	" -DAT	go-PART-

in-den	daha	sık	gid-er.
POSS-ABL	more	often	go-AOR

b.

?İlteriş	Ankara-ya	Istanbul-dan	daha sık
"	" -DAT	" -ABL	more often

gid-er.[25]
go-AOR

Phrasal remainders composed of underlying locatives are not fully grammatical:

(7) Orhan meets Ayşe at the theater more often than (he meets her) at the cinema.

a. Orhan Ayşe-ye sinema-da rastla-dığ-ın-dan
" " -DAT cinema-LOC meet-PART-POSS-ABL

daha sık tiyatro-da rastl-ar.
more often theater-LOC meet-AOR.

b. ?Orhan Ayşe-ye sinema-dan daha sık
" " -DAT cinema-ABL more often

tiyatro-da rastl-ar.
theater-LOC meet-AOR

By far, underlying ablative NP's make the worst phrasal remainders, whether or not the NP was the idiosyncratic object of a verb as in (8).

(8) I fear cats more than (I fear) dogs (ABL).

a. (Ben) kedi-ler-den (ben-im) köpek-ler-den
I cat-PLU-ABL I-GEN dog-PLU-ABL

kork-tuğ-um-dan fazla kork-ar-ım.
fear-PART-POSS-ABL more fear-AOR-1

b. *(Ben) kedi-ler-den köpek-ler-den fazla
I cat-PLU-ABL dog-PLU-ABL more

kork-ar-ım.
fear-AOR-1

(9) Zeynep entered through the window much more slowly than (she entered) through the door.

a. ?Zeynep pencere-den kapı-dan gir-diğ-
" window-ABL door-ABL enter-PART-

in-den çok daha yavaş gir-di.
POSS-ABL much more slowly enter-PAST

b. *Zeynep pencere-den kapı-dan çok daha
" window-ABL door-ABL much more

yavaş gir-di.
slowly enter-PAST

The presence of immediately contiguous ablative NP's seems to account for the particular badness of these sentences. Consider what happens when elements intervene between the NP's.

(10) I like the theater (ABL) better than the movies (ABL).

?(Ben)	sinema-dan	fazla	tiyatro-dan	hoşlan-
I	cinema-ABL	more	theater-ABL	like-
ır-ım.				
AOR-1				

(11) I like French theater pieces (ABL) better than movies (ABL).

½?(Ben)	sinema-dan	fazla	fránsız	piyes-ler-
I	cinema-ABL	more	french	piece-PLU-
in-den	hoşlan-ır-ım.			
POSS-ABL	like-AOR-1			

The more stuff intervenes between the two ablative NP's, the better the sentence.

Also of interest is the difference in grammaticality between the clausal and phrasal comparatives in (8a) and (8b). It looks like two adjacent ablatives are tolerated if a clause boundary intervenes between them.

Summary

Phrasal remainders composed of NP's which had oblique case-markers removed are consistently judged to be less grammatical than phrasal remainders containing underlying subject or direct object NP's.

Recall that we saw in Section 2.1.3 that extraction of non-oblique NP's by CD is favored over extraction of oblique NP's.

Apparently, Turkish prefers not to wipe out exactly those case-markers that correspond to prepositions in English. Furthermore, Hankamer has noticed that ellipsis rules in general cannot strip prepositions off prepositional phrases in English. Consider the following:

(12) Earl reportedly hoped to receive more chicken soup from Agatha than from his mother. ⟶

??Earl reportedly hoped to receive more chicken soup from Agatha than his mother.

(13) Abe was mugged by Penelope as often as by Cindy. ⟶

*Abe was mugged by Penelope as often as Cindy.

This cannot be an accident. However, it is not clear how a constraint on ellipsis rules, general enough to account for the facts in Turkish and English, is to be stated. Not only must we distinguish nominative and accusative cases from oblique ones, we must also collapse oblique case-markers in case-marking languages with prepositions in non-case-marking languages.

Footnotes

* For her contributions of time, judgments, and amiability, I thank Jaklin Kornfilt. Jorge Hankamer has been an invaluable critic and idea-generator. In addition, I acknowledge the many helpful comments made by individuals attending the Harvard syntax course in which the first version of this paper was presented.

1. The only exceptions to this generalization are 1) _ki_-clauses 2) the complements of verbs which take subject-to-object raising (and are only optionally nominalized) and 3) some adverbial embeddings (which are not nominalized but adverbialized). Additionally, not all embedded clauses nominalize according to the pattern presented here; in certain types of relative clauses, a participial suffix is attached to the verb but neither the genitive nor the agreeing possessive appears. For more information about nominalization options in relative clauses, see Underhill (1972), Knecht (1974), or Hankamer and Knecht (1975).

2. In line with standard Turcological practice, capital letters are used to represent segments which are not fully specified until after such rules as vowel harmony and consonant assimilation apply.

3. The sentence in (9b) is good as a response to the following question:

a. Did _your mother_ wash you?

Sen-i	anne-n	mi	yɨka-dɨ?
you-ACC	mother-POSS	?	wash-PAST

The conditions required for object pronoun drop are ill-understood but they are definitely not equivalent to the conditions required for subject pronoun drop.

4. See Hankamer (1971) for a more detailed discussion of Comparative Ellipsis.

5. This means that the remainder in a clausal comparative must be an NP. But it might be dominated simply by S in which case we must conclude that case-markers in Turkish attach to NP's or S's.

6. Jorge Hankamer takes credit for this suggestion.

7. Actually, the comparative in (14) is ambiguous. Hankamer (1973) has shown that only subjects of intransitive verbs and objects of transitive verbs may serve as phrasal remainders. Where 'Miss Peach' in (14) corresponds to an object (as in 'Abernathy likes Dagwood more than he likes Miss Peach.'), we have a phrasal comparative; where it corresponds to a subject (as in 'Abernathy likes Dagwood more than Miss Peach does.'), we have a clausal comparative.

8. That clausal comparatives are islands is shown by the following examples:

a. He heard more sordid stories about Earth Shoes than he would dare repeat to his friends. ⟶

*Which friends did he hear more sordid stories about Earth Shoes than he would dare repeat to?

b. Maxwell talks to linguists with more enthusiasm than Aaron talks to limnologists. ⟶

*It's limnologists that Maxwell talks to linguists with more enthusiasm than Aaron talks to.

9. Hankamer has examples like these in his paper "Why There are Two Than's in English" (1973).

10. It is not the case that all comparatives with idiosyncratic dative targets are better than comparatives with indirect object targets. Consider the following:

a. I'll begin more lessons today than the teacher
began (DAT) yesterday.

??Bugün, öğretmen-in dün başla-díğ-
today teacher-GEN yesterday begin-PART-

ín-dan fazla ders-e baslí-yacağ-ím.
POSS-ABL more lesson-DAT begin-FUT-1

I have no idea why this comparative is worse than (23) and (24).

11. The sentence in (33) can only mean 'I loathe snakes less than you do.'

12. The sentences in (35) through (38) were so inconceivable that my informant had some difficulty imagining what they would look like. In particular, it was difficult to decide whether the subject of the comparative clause (deleted by CD) would trigger plural agreement on its verb. Nevertheless, whether the verb is singular as in (35) and (37) or plural as in (36) and (38), the resulting comparative is out.

13. The participial suffix *mIş* indicates not only past tense but also indirect access to knowledge about the truth of the assertion.

14. Sentential subjects in Turkish, as in other SOV languages, are not islands for extraction rules. Relativization, for instance, freely applies into them. See Hankamer and Knecht (1975) for further details.

15. The participial suffix *mA* appears here in place of *DIK*. The distribution of these two suffixes is controlled by ill-understood semantic factors associated with the matrix predicate.

16. The verb *hoşlanmak* (to like) takes an ablative object.

17. This sentence is best with a pause after *kíz*. If

fazla is followed by a comma, the sentence has a reading something like, 'More than having her purses stolen, the girl lost her belts.' Jaklin Kornfilt pointed this out to me.

18. Hankamer has suggested an alternative analysis of the generic object facts. Perhaps generic objects *are* promoted subject by Passive but as generic subjects, they undergo incorporation with their verbs. At the present time, I know of no overwhelming evidence for or against this analysis. Like the analysis I sketched whereby generic object incorporation precedes Passive, it accounts for the fact that passives derived from actives with generic direct objects show no signs of having subjects.

19. There is also evidence that the rule can apply in certain transitive constructions. See Hankamer and Knecht (forthcoming) for a more detailed discussion of subject-demotion.

20. I am indebted to Hankamer for suggesting this line of argument. Hankamer also first noticed the significance of the correlation between sentences (82) and (83) below.

21. Just as clausal comparatives formed on adjectives are consistently less acceptable than the related phrasals, clausal comparatives in which subdeletion has operated on a subject NP are judged to be less acceptable than their phrasal counterparts. For instance, consider the following pair:

a. More men ate figs than women ate figs.

?*Kadín-lar-ín incir ye-diğ-in-den fazla
woman-PLU-GEN fig eat-PART -POSS-ABL more

erkek incir ye-di.
man fig eat-PAST

b. More men ate figs than women.

?Kadín-dan fazla erkek incir ye-di.
woman-ABL more man fig eat-PAST

It is interesting to note that Pinkham (1974) has arguments in English for the non-clausal origin of phrasal comparatives like (b) above. She points out contrasts like the following:

(1)a. ?More people fly Panam than fly any other airline.

b. More people fly Panam than any other airline.

(2)a. More people than fly any other airline fly Panam.

b. *More people than any other airline fly Panam.

CE has applied in both of the (b) sentences but crucially, it has operated backwards in (2b). Pinkham argues that (2b) is ungrammatical because ellipsis rules in English can only operate from left to right.

But the following sentence should be out since CE has operated backwards:

(3) More businessmen than tourists fly Panam.

The conclusion is that CE has not operated in (3), which makes the tourists a base-generated phrasal.

Perhaps similar conclusions can be reached about the Turkish version of (3) but I will not attempt to reach them here.

22. The preferred version of this sentence has the second occurence of Ayşeye replaced by kendisine, which is the remains of the phrase Ayşenin kendisine (Ayşe-GEN self-

POSS-DAT). The genitive NP attached to kendi usually drops.

23. The Accessibility Hierarchy does not correctly characterize relativization in Turkish. For instance, possessor NP's are more accessible than objects of postpositions. See Carrier (1974) for further details.

24. I have vastly oversimplified this hierarchy. Oblique objects vary so much in accessibility that it is difficult to rank them against other NP's.

25. A phrasal comparative quite similar to this semantically but with an underlying accusative NP in the remainder is fully grammatical:

(a) İlteriş visits Ankara more often than İstanbul.

İlteriş	Ankara-yɨ	İstanbul-dan	daha sɨk
"	" -ACC	" -ABL	more often

ziyaret	ed-er.
visit	do-AOR

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THE CYCLE AGAINST FREE RULE APPLICATION
(Evidence from Turkish)*

Jaklin Kornfilt

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0. Introduction:

0. 1. The nature of the controversy:

Proponents of no-ordering hypotheses (e.g. Koutsoudas, Sanders & Noll (1974), Ringen (1972)) motivate their approach by claiming to reduce the ad-hocity which is inherent in any statement of extrinsic rule ordering. They argue that, while research should be directed at finding restrictions on the power of transformational grammar, the possibility of language-specific, extrinsic rule orderings provide the model with more power than can be shown to be necessary. The claim is that a small number of very general and universal principles are sufficient for predicting rule interactions.

At the beginning of the controversy about rule orderings the validity of the Cyclic Principle was not questioned; only lately has it been challenged along with all other extrinsic rule orderings (e.g. Pullum (1975), Pukawa (1975)).

While the Cyclic Principle *is* an extrinsic statement about rule orderings, it should be set apart from ad-hoc statements about *particular* rules, because it makes many of them superfluous in a principled manner: once cyclicity is assumed and S defined as the cyclic node, it follows automatically that rules like Passive and Reflexivization, when affecting the domain of a deeply embedded sentence, will apply before rules of a higher sentence, e.g. Raising rules and Equi, and this order will not have to be stated ad-hocly.

In order to invalidate a model which makes essential use of the Cyclic Principle, it has to be shown, therefore, that a no-ordering model can account for the same facts a Cyclic Theory can, and preferably also for facts a Cyclic Theory cannot account for, without making recourse to any ad-hoc devices, like complicating the rules themselves.

0. 2. *The purpose of the paper*:

The purpose of this paper is to show that the Cyclic Principle cannot be dispensed with, by examining some facts of Turkish. It will be argued that the Cyclic Principle predicts all these facts automatically and in a simple manner, while no-ordering models either make wrong predictions altogether or can be saved only by costly and ad-hoc restrictions on their supposedly general and universal statements about rule applications.

The discussion will have two major parts: the evaluation of models with unordered sequential rule application (mostly sections 2-4 incl), and the discussion of theories which allow simultaneous (more exactly: partly simultaneous) rule application (section 5) in addition to unordered sequential rule application.

1. The importance of A-B-A derivations for the Cyclic Theory

1. 0. In general: against Fixed Linear Order

After it was established by transformational grammarians that rules must be applicable to the outputs of other rules in order to achieve simple and economic descriptions, it was first assumed that the order in which rules could apply had to be fixed in a strictly linear sequence: once the place of a particular rule vis-à-vis others had been established in the ordering list, no different ordering could be postulated. For all derivations, at least in the particular language one was investigating, every rule was checked in the order as given in the list, and once checked, regardless of whether it had actually applied or not (i.e. whether its structural description had been met at this point or not) it could not be checked again.

The drawbacks of this approach soon became apparent in the generation of complex structures. Ordering paradoxes seemed to be inevitable, as a given ordering between two rules which seemed to be well established by a large number of sentences had to be reversed in order to derive another large group of grammatical sentences.1)

Such ordering paradoxes were even more striking when they were involved in a single derivation: in order to derive a set of grammatical sentences, a given rule, A, had to apply both before and after another rule, B.2) It is clear that such examples falsify the theory of Fixed Linear Application of rules.

A solution to this problem was found, however, when it was noticed that all these cases had something in common: the two applications of rule A never took place in the same simplex: the sentence to which rule A applied first was always more deeply embedded than the sentence rule A applied to for the second time.

A convention for rule application in complex structures took care of A-B-A orderings in the following way:

The ordered set of transformational rules applies as many times as there are S's, each time in the same order and checking all rules for application, starting with the lowest embedded S and working up to the highest. This bottom-to-top application of rules, starting the list of rules anew with each higher S, is called the "Cyclic Principle".

In a model incorporating this principle, the problematic cases mentioned above are no longer paradoxes, since the different applications of one and the same rule and the contradictory orderings of one rule vis-à-vis another become a matter of different cycles and are thus predictable.

Arguments based on A-B-A applications of rules have thus become crucial for establishing the existence of the cycle in any particular language.

1. 1. There are derivations in Turkish where rules have to apply in A-B-A order:

There exist grammatical sentences in Turkish which require Passive to apply twice in the course of their derivation, with an intervening application of Subject-to-Object Raising (SOR).

Passive in Turkish can apply in main as well as embedded sentences, and SOR, with the appropriate matrix verbs, can operate on the original embedded subject as well as on the derived one after Passive has applied to the embedded sentence, exactly as the Cyclic Principle predicts. (For details of these rules and for the relevant examples illustrating the different possibilities mentioned above, see Aissen, (1974) b.)

The following information might be useful to the reader not acquainted with Turkish:

Passive: The following pair of sentences illustrates the structural changes performed by Passive:

(1)a. ben sen-i öp-tü-m
I you-Acc. kiss-Past-1.prs.sg.
'I kissed you'

(1)b.	sen	ben-im tarafından	öp-ül-dün
	you	"by me"	kiss-PASS-Past-2.prs.sg.

'you were kissed by me'

The changes are as follows:

1. The verbal stem of the sentence, to which Passive applies, is marked with a suffix of the form -Il.3)
2. The underlying agent, if lexical, goes from its unmarked sentence-initial position to an unmarked second position and is followed by the postposition tarafından (= from the side of), corresponding to the English by.
3. The underlying direct object becomes the derived subject, losing its Accusative marking, and triggers person agreement on the verb of its simplex, since agreement of person with all genuine subjects is obligatory in Turkish; its unmarked position is now sentence-initial.

If the underlying agent is not lexical (i.e. PRO), all the mentioned steps of Passive are performed, after which obligatory Unspecified Agent Deletion is applied. This means that the sentence lacks a tarafından-phrase on the surface.

Subject-to-Object Raising: The pair of sentences in (2) illustrates the structural changes of SOR:

(2)a.	ben	[sen-in	Ankara-ya	git - tiğ - in -]i
	I	you-Gen.	A. -Dat.	go- Fact.Nom.-Poss.-Acc. 3.sg.

san-ıyor-du-m
believe-Progr.-Past-1.sg.

'I was thinking that you had gone to Ankara'

(2)b. ben sen-i Ankara-ya git-ti san-ıyor-du-m
I you-Acc. A. -Dat. go-Past believe-Progr.-
Past-1.sg.
'I believed you to have gone to Ankara'

(2)a. exhibits the standard form of embedded sentences with nominalization of the complement clause (here marked for object by the Accusative marker on its verb): the matrix verb triggers nominal-suffix attachment (here, of the Factive Nominal) on the embedded verb, which is followed by a possessive-marker, agreeing with the embedded subject in person and number. The subject gets marked with the Genitive-suffix.

(2)b. has undergone SOR. The effects of this rule are the following:

1. The embedded subject: Main clause subjects in Turkish are in the Nominative and thus unmarked for case. In embedded sentences, however, as illustrated by (2)a., subjects are marked with the Genitive case; the subject, then, can appear in two forms: marked for Genitive, or unmarked.[4]

   After SOR has applied, however, the same NP is marked with the Accusative, demonstrating that it has become a derived direct object.

2. The embedded verb: As already mentioned, finite verbs in Turkish have to agree with their surface subject. Since Direct Speech Sentences (see ftn.4) have finite embedded verbs, these agree with the embedded subjects. In the standard cases, however, the embedded verb does not carry any tense marker

and becomes a nominal form (see (2)a.); it does agree with its subject, but carries an agreement marker typical for nouns and not for verbs.

The embedded verbs of complex structures to which SOR has applied exhibit a form which is peculiar and is found in such Raising structures only: they carry tense markers as genuine finite verbs do, but no personal agreement markers at all.[5)]

The evidence for A-B-A application of Passive and SOR comes from sentences like the following:

(3) ben döv-ül-dü   san-ıl-ıyor-um
  I beat-PASS-Past believe-PASS-Pres.-1.prs.sg.
  'I am believed to have been beaten'

Both the embedded and the main verb carry Passive markers, a sign that the Passive transformation has applied to both the embedded and the main sentence.

The main verb carries a first person singular agreement marker, which shows that ben is really the genuine surface subject of the main sentence. Moreover, ben is in sentence-initial position - another piece of evidence for its subjecthood.

The embedded verb does not exhibit any nominalisation suffix; it is marked for tense, but not for person. This, then, is evidence for SOR having applied in the derivation of (3).

The proposed derivation of (3) would run as follows:

```
(4) DS:  PRO [ PRO  ben-i      döv-dü ] san-ıyor
                    I-Acc.   beat-Past believe-Pres.
    ____________________________________________________
    I:   PRO [ ben         döv-ül-dü   ] san-ıyor
               I-Nom.        PASS
         (First application of PASS in embedded S)
    ____________________________________________________
    II:  PRO  ben-i[Ø      döv-ül-dü  ]  san-ıyor
               I-Acc.
         (SOR, removing the subject from the embedded
          S and blocking person-agreement)
    ____________________________________________________
    III: ben          [    döv-ül-dü  ] san-ıl-ıyor-um
         I-Nom           beat-PASS-Past   PASS-Pres.-
                                                 1.sg.
         (Second application of PASS, in the main S
          this time, and agreement marking on the
          main verb with the new derived subject)
```

(Since the underlying agents of both the main and the embedded sentences were PRO, both applications of Passive were obligatorily followed by Unspecified Agent Deletion; this has no bearing whatsoever on our topic.)

Our grammatical sentence (3) has been derived by an A-B-A application of the two rules involved. While a Fixed Linear Application model does not permit such derivations, this application is possible in a Cyclic Theory: application of Passive on the first cycle; SOR on the second cycle, creating a derived direct object to which Passive can apply again, this time on the second cycle.

Conclusion: Sentences like (3) are derived by an A-B-A application of Passive and SOR, and thus the prerequisite for positing the existence of the cycle in Turkish is fulfilled.

2. A-B-A derivations in a Free Application Theory

2. 0. The nature of a Free Application Theory

Consider a model where no statement is made about the order of rules and where rules are allowed to apply whenever their structural descriptions are met in the course of a derivation. (This model is usually referred to as the Free Application or Random Sequential Theory in the literature; for some, Free Application has been used in the sense of Semi-Simultaneous Application as discussed in section 5 of this paper; here, we will use Free Application in the sense of Random Sequential.)

Can sentences like (3) be generated by such a model?

If this question can be answered affirmatively, then, as far as sentences with the required derivation A-B-A are concerned, one might seriously consider the possibility of discarding the Cyclic Theory (CT) in favor of the Free Application Theory (FAT), since the former makes crucial use of an extrinsic statement about rule orderings (i.e. that rules apply in cyclic fashion in the manner described in section 1. 0.), while the latter does not need any extrinsic statements at all.

However, the existence of grammatical sentences whose derivations are possible in a CT but impossible in a FAT will force acceptance of the former theory versus the latter; the same evaluation is forced if the FAT produces ungrammatical outputs which are not generated by the CT.

The following sections will be devoted to the characterization and illustration of such cases.

2. 1. How does the Free Application Theory work for A-B-A derivations?

Suppose we want to generate sentence (3) in the framework of the FAT. We start as an input with the DS as proposed in (4).

We check in our (unordered) inventory of rules for those rules which can apply to this input. Passive is such a rule; both the embedded and the matrix sentence meet its structural description. Let us apply Passive to the embedded sentence only. (Since Passive is an optional rule, its failure to apply to the matrix sentence should have no ungrammatical consequence).

Now, we are on stage I of our derivation (4). Let us go through our inventory of rules again and look for a rule which can use this structure as an input. SOR is such a rule. We apply it to I and get II.

A third run through the unordered list of rules will check Passive as a rule which can apply to II. This operation will yield III - or, in other words, sentence (3), which we had wanted to generate.

We see that an A-B-A application of rules per se is not enough to establish the existence of the Cyclic Principle, since the same mode of application can be yielded in a model with FAT, as well.

In order to show that the CT is superior to the FAT, we have to demonstrate that the latter theory makes wrong predictions about Turkish. Only then can we claim to have established the existence of the Cycle in Turkish (and this would be the procedure for any language).

3. Structure of counterarguments against Free Rule Application:

3. 0. Difference between the Cyclic and the Free Application Theory in handling the same cases

Notice that both the CT and the FAT predict that there will be derivations where one of the two rules Passive and SOR will not apply - in fact, it is predicted that there exist also derivations where none of these rules apply. This is because both of these rules are optional. Let us consider in detail one such derivation, namely one which differs from (4) in that step I is missing. In other words, this is a derivation where Passive does not apply in the domain of the embedded sentence.

Unfortunately, we cannot use the input structure of (4) since non-lexical subjects cannot be raised. Let us therefore construct an example with an embedded lexical subject.

(5) PRO [siz ben-i dõv-dũ] san-ıyor
you(pl.) I-Acc. beat-Past believe-Pres.

is a structure on which both Passive and SOR can perform structural changes optionally.

(The gloss of (5), which is not an output, but a putative input, is, roughly:

'PRO believes (that) you beat me'

A derivation corresponding to (4), i.e. one where both rules are applied in A-B-A order, will yield:

(6) ben [sizin tarafınızdan döv-ül-dü] san-ıl-ıyor-um
I "by you" beat-Pass-Past believe-Pass-Pres.-1.sg.

'I am believed to have been beaten by you'

Consider now the following sentence:

(7) siz [ben-i döv-dü] san-ıl-ıyor-sunuz
you (pl.) I-Acc. beat-Past believe-Pass.-Pres.-2.pl.

'you are believed to have beaten me'

The "understood" embedded subject has become the matrix subject in the surface, which can be seen by the person agreement it triggers on the matrix verb.

The embedded verb does not carry a Passive marker, while the matrix verb does; we conclude that Passive has not applied to the embedded sentence, while it has to the main sentence. The proposed derivation (using (5) as input structure):

(8) DS: PRO [siz ben-i döv-dü] san-ıyor
you I-Acc. beat-Past believe-Pres.

I: PRO siz-i [ben-i döv-dü] san-ıyor
you-Acc.
(Application of SOR)

II: siz [ben-i döv-dü] san-ıl-ıyor-sunuz
you-Nom. -PASS-Pres.-2.pl.
(Passive + Unspecified Agent Deletion on the main sentence)

Here is how the two mentioned models would handle such derivations:

1. The *Cyclic Principle* is so formulated that, once rules have been applied to higher sentences on the tree, no rule can "go back" to the domain of a sentence which is lower on the input tree. It follows for our derivation (8) that, once SOR is applied and thus the matrix sentence is involved in the derivation, the embedded sentence is out of reach for any clause-bounded rule such as Passive which would exclusively affect the domain of this embedded sentence. This means that it is an automatic consequence of the way the Cyclic Principle is formulated and not of the effects the rule of SOR happens to have that the derivation in (8) is either terminated after step I, or further continued by rules applying in the domain of the matrix sentence, but that the embedded sentence cannot get passivized any longer.

2. The *Free Application Theory* has no a-priori statement to make about the order of rules; off-hand, there is no reason why rules should not apply to deeply embedded sentences on an input tree even after they have been applied to higher sentences. In our derivation, however, the effects of SOR exclude the possibility of an application of Passive to the constituent sentence after the embedded subject has been raised: Passive cannot apply to a subjectless sentence. It is the bleeding relationship of the rule of SOR to Passive as applied to the embedded sentence that prevents derivations where Passive applies in the lower sentence *after* SOR has applied in the upper sentence.

Conclusion: The conclusion of this section is that, while derivations like (8) with outputs like sentence (7) are possible in both the Cyclic and the Free Application models, the manner in which the respective models generate such derivations and exclude orderings of upstairs rules before downstairs rules in cases like the one described above is different: in the former by an a priori statement about the order between sentence domains and thus also of rules, and in the latter by the formulations and effects of the individual rules themselves. This difference will be of importance in the following discussion:

3. 1. Counterexamples to the Free Application Theory

Let us consider a case where the "downstairs" rule is not Passive, but Reflexive.

According to the CT, Reflexivization is guaranteed to apply, since the domain of its application, i.e. the most deeply embedded sentence, is, by convention, scanned first for applicable rules, and since Reflexive is an obligatory rule.

However, this is not the case in a FAT. Assume the existence of an input structure where the structural descriptions of both Reflexivization on the embedded sentence and of SOR on the matrix sentence are met. The inventory of rules has access to the entire input tree and not just to the structure of the embedded sentence as in the CT. Therefore, there will exist derivations where Reflexivization applies first as well as others where SOR is the rule which applies first.

Consider the latter case. This will be a derivation parallel to the one we had in (8). Once SOR has applied, Reflexivization, which is a clause-bounded rule, cannot operate on the embedded clause. In (8), where Passive was bled by SOR and could not apply to the embedded sentence, the result was grammatical, since Passive is an optional rule. But, since Reflexivization is obligatory, a derivation like the one in (8) yields an ungrammatical sentence.

This is illustrated by the following example (with a similar input as in (8), with the only difference being that the embedded subject and direct object are co-referents):

(9) PRO [siz$_i$ siz-i$_i$ döv-dü] san-ıyor
you you-Acc. beat-Past believe-Pres.

I: PRO siz-i$_i$ [siz-i$_i$ döv-dü] san-ıyor
you-Acc.
(application of SOR)

II: *siz$_i$ [siz-i$_i$ döv-dü] san-ıl-ıyor-sunuz
you-Nom. believe-Pass.-Pres.
-2.prs.pl.
(application of Passive + Unspec. Agent Deletion)
'*You are believed to have beaten you'[6)]

The result is ungrammatical; the embedded object should have been changed into a reflexive pronoun, while it surfaced as a personal pronoun here. The only derivation where the grammatical result is achieved is one where Reflexivization applies before SOR:

(10) PRO [siz$_i$ siz-i$_i$ döv-dü] san-ıyor
you you-Acc. beat-Past believe-Pres.

I: PRO [siz$_i$ kendi-niz-i$_i$ döv-dü] san-ıyor
you self-Poss. 2.pl.-Acc. beat-Past believe-Pres.

(application of Reflexivization)

II: PRO siz-i$_i$ [kendi-niz-i$_i$ döv-dü] san-ıyor
you-Acc.

(application of SOR)

III: siz$_i$ [kendi-niz-i$_i$ döv-dü] san-ıl-ıyor-sunuz
you-Nom. believe-Pass.-Pres.-2.prs.pl.

(application of Passive + Unspec. Agent Deletion)

'You are believed to have beaten yourself'

This ordering between Reflexivization and SOR is an automatic result of the CT, as we already said. But as for the FAT, there is nothing in the way it is formulated which will force such an ordering and thus exclude the possibility of derivations like (9) with ungrammatical results.

3. 2. Conclusion: There are as many counterexamples to the FAT as there are cases where an obligatory "downstairs" rule can be bled by an "upstairs" rule. The necessity of extrinsic ordering statements like those specified by the CT seems to be inevitable, as derivations like (9) with their ungrammatical results illustrate that the fate of rule interactions cannot always be handled successfully by the effects of the

individual rules themselves.[7)]

4. The "Obligatory First" Convention

4. 0. The nature of the convention

In order to make the FAT work in the face of counterexamples like those discussed in the previous section, a convention was added,[8)] according to which an obligatory rule applies before an optional one in case a given input structure satisfies the structural descriptions of both an obligatory and an optional rule.

An appropriate example is the input structure as given in (9) and (10), which satisfies the structural descriptions of both Reflexivization and SOR. The new convention forces the application of Reflexivization first and thus excludes ungrammatical sentences like the output of (9) from being generated.

However, the "Obligatory First" convention seems to be an extrinsic statement about rule ordering, and one might ask why it should be preferred to the CT.

Proponents of no-ordering models who have advocated such a convention have argued that the ordering statement entailed here is not ad-hoc but rather an automatic and universal consequence of the way the notion "obligatory rule" is defined in an unordered system.

In "traditional" ordered models of transformational grammar an obligatory rule is defined as a rule which necessarily has to apply if its structural description is met at a given stage of derivation as specified by the CT and/or ordering statements between this rule and other rules.

In unordered models, however, no stage in a derivation can be specified and picked out for rule application on a-priori grounds. The whole inventory of rules has to be scanned in all points of a derivation. It follows, therefore, that the above definition of an obligatory rule has to be changed: the last part cannot hold anymore. We are left with something like:

> An obligatory rule is a rule which has necessarily to be applied whenever its structural description is met.

Once this definition is accepted as a valid one, the contention that the "Obligatory First" convention follows automatically from it is plausible.

In the following section, I will take the non-adhocity of this convention for granted and consider the question of whether it is empirically adequate.

4. 1. Counterexamples to the "Obligatory First" Convention

4. 1. 1. The necessity to look for questions which are answered differently by the two theories

At this point of the discussion, we should remind ourselves that derivations like (10) were handled similarly by both the Cyclic and the Obligatory First principles:Reflexivization was ordered before SOR. However, the motivation for this ordering was different: in the CT, Reflexivization applies first because its structural description is met on a lower "cycle" than that of SOR. For the Obligatory First principle, on the other hand, Reflexivization applies before SOR because Reflexivization is an obligatory rule and

SOR an optional one.

Thus, we need to look for cases where different predictions are made by the two principles and then check the actual facts.

4. 1. 2. Can an upstairs obligatory rule be bled by a downstairs optional one?

This question will be answered differently by the two principles we have been discussing: affirmatively by the CT and negatively by the Obligatory First convention.

The reason for this difference can be seen easily: In the CT, a downstairs rule, if applied at all, will be applied before an upstairs rule. Just in case the downstairs rule effects such a change as to make the application of a previously applicable rule impossible, the question above will be answered affirmatively. The obligatoriness or optionality of the rules involved has no bearing on this issue.

In the Obligatory First theory, however, such a situation is not conceivable. Here, if both an obligatory and an optional rule can apply to a given phrase marker, the obligatory rule applies first, and thus an optional rule which potentially could bleed an obligatory one does not get a chance to do this.

Can, in fact, cases be found which show which of these different predictions is correct?

4. 1. 3. Example for the previous question: Equi - Passive in Turkish

Passive is an optional rule in Turkish, i.e. if its structural description is met by a given phrase marker, it may or may not apply - the result will be grammatical in both cases:

(11) ben Zeyneb-i öp-tü-m
I -Acc. kiss-Past-1.prs.sg.
'I kissed Zeynep'

(12) Zeynep benim tarafımdan öp-ül-dü
"by me" kiss-Pass.-Past9)
'Zeynep was kissed by me'

are both grammatical.

Equi, however, is obligatory, if the conditions for its application are fulfilled. In order to illustrate this point, let us consider an instance of Equi with the matrix verb "istemek" = 'to want', where Equi has to apply if the embedded and the matrix subject are co-referent.

As we already said in our discussion of SOR, embedded verbs have to be nominalized in Turkish. "Istemek" as a matrix verb triggers so-called "Action-Nominalization" of the verbs embedded beneath it, which is marked by the suffix -mE.

(13)a. ben [Fahri-nin Zeyneb-i öp-me-sin]i
I -Gen. -Acc.kiss-Act.Nom.-Poss.
3.sg.-Acc.
iste-di-m
want-Past-1.sg.
'I wanted that Fahri kiss Zeynep'
(literally:'I wanted Fahri's kissing Zeynep')

(13)b. Fahri [ben-im Zeyneb-i öp-me-m]i iste-di
I-Gen. -Acc.kiss-Act. want-Past
Nom.-Poss.
1.sg.-Acc.

'Fahri wanted that I kiss Zeynep'
(literally: 'Fahri wanted my kissing Zeynep')

(13)a. and b. illustrate the process of Nominalization which takes place when the conditions for Equi are not fulfilled. But whenever these conditions are satisfied, Equi has to be applied, and its failure to apply has an ungrammatical result.

The surface manifestations of Equi in Turkish are similar to those in English: the embedded subject is deleted, and the embedded verb surfaces as an infinitive, the sign of which is the suffix -mEk:

(14)a. ben$_i$ [Ø$_i$ Zeyneb-i öp-mek]iste-di-m
I -Acc. kiss-Inf. want-Past-1.sg.

'I wanted to kiss Zeynep'

b. Fahri$_i$ [Ø$_i$ Zeyneb-i öp-mek]iste-di
-Acc.kiss-Inf. want-Past

'Fahri wanted to kiss Zeynep'

The sentences in (14) are ungrammatical if the usual Nominalization process which we saw in the (13) sentences applies to them:

(15)a. *ben$_i$[ben-im$_i$ Zeyneb-i öp-me-m]-i iste-di-m
I I-Gen. -Acc. kiss-Act. want-Past-
Nom.-Poss. 1.sg.
1.sg.-Acc.

'*I wanted that I kiss Zeynep'

b. *Fahri$_i$ [Fahri-nin$_i$ Zeyneb-i öp-me-sin]i
o-nun$_i$
F./he-Gen. -Acc.kiss-Act.Nom.-Poss.
3.sg.-Acc.
iste-di
want-Past

'*Fahri$_i$ wanted that Fahri$_i$/he$_i$ kiss Zeynep'

(The reading of (15)b. where the embedded Fahri or he is not co-referential with the matrix subject is grammatical.)

Now, after having established Equi as an obligatory rule and Passive as an optional one, let us see how they interact.

Remember that an unordered model with the "Obligatory First" principle predicts that, for a structure like the one underlying (14)a., which meets the structural descriptions of both Equi and Passive, Equi applies first; therefore Passive, which can potentially bleed Equi, never has a chance to do so. In fact, since these two rules are mutually bleeding if applied to the same phrase marker (since Passive can no longer apply to a sentence whose subject has been deleted by Equi), the prediction is that Equi will always bleed Passive in structures like the ones underlying the sentences in (14).

However, the sentence

(16) ben$_i$ [Zeyneb-in benim$_i$ tarafımdan öp-ül-me-sin]-i
I -Gen. "by me" kiss-Pass.-Act. Nom.-Poss.3.sg. -Acc.

iste-di-m
want-Past-1.sg.

'I wanted that Zeynep be kissed by me'

is perfectly grammatical in Turkish.10)

This sentence is predicted to be ungrammatical by the Obligatory First convention, and thus cannot be generated in a theory which includes this convention. On the other hand, the CT generates (16) in a straightforward manner, by applying Passive to the most deeply embedded cycle; when the higher cycle is reached and Equi is checked for application, it can no longer apply, since the derived subject is not a co-referent of the matrix subject.

We have found a case which can be accounted for by the CT and not by the Obligatory First convention. Let us try to find other instances showing the same point in order to illustrate the fact that the Obligatory First convention is generally inadequate and not just in one isolated case of rule interaction.

4. 1. 4. Can an upstairs obligatory rule bleed a downstairs optional rule?

Let us call a downstairs rule A and an upstairs one B; according to the CT, A will always automatically be ordered before B, no matter whether these rules are optional or not. In a FAT, however, if A is optional and B obligatory and if a given phrase marker meets the structural description of both rules, B has to apply before A.

Reconsidering the question we were asking in section 4. 1. 2. and the answer we gave in 4. 1. 3. in these terms, it becomes clear that we were dealing with a special case of the question we are about to discuss further in this section.

If A stands for Passive and B for Equi, we in fact have an instance of Passive, (a downstairs optional rule), being bled by Equi, (an upstairs obligatory one), in the attempt to generate (16) in the framework of a FAT making use of the Obligatory First convention, since Equi has to bleed Passive whenever it is allowed to apply first (and it *has* to apply first in such a model, since it is an obligatory rule).11) It just so happens that Passive itself can bleed Equi if applied first. But it is conceivable that there are cases where a downstairs optional rule can potentially be bled by an upstairs obligatory rule, but where this downstairs rule, if it is given a chance to apply first, either does not affect the upstairs rule at all or feeds it.

It is crucial to realize that an upstairs obligatory rule is not allowed to bleed a downstairs optional rule in the CT; the downstairs rule is *always* ordered first, and thus the situation of upstairs B bleeding downstairs A *never* arizes.

On the other hand, this situation is not only allowed by the Obligatory First convention, it is predicted to hold always, whenever an obligatory rule can bleed an optional rule: it will *always* be this bleeding relationship which will be realized, and the reverse (counterbleeding) ordering predicted by the CT will never occur.

Let us check, then, if cases of this type can be found, and if they can, which one of these predictions they corroborate.

The following sections will show that Turkish does, in fact, exhibit such cases. The common denominator of the following instances of possible (and necessary) counter-bleeding rule orderings will be the following: the derivations of the crucial sentences involve the application of obligatory Relativization to the output of optional cyclic rules which take place in embedded domains, while Relativization itself applies on higher sentences. Another common factor is the fact that if Relativization applies first, it bleeds these optional rules; if the optional rules apply first, they feed Relativization.

Let us recapitulate the predictions made by the rival models:

The CT predicts that in case both an optional downstairs rule, which potentially can feed Relativization, and upstairs obligatory Relativization, which can potentially bleed this downstairs rule, apply to a given phrase marker, there will be two grammatical surface strings:

1. The downstairs optional rule does not apply, only Relativization does.
2. The downstairs optional rule does apply, feeds Relativization, which thus gets an additional opportunity to apply.

The results of 1. and 2. have to be distinct in order to be able to prove the existence of such derivations as predicted for 2. We see that the possibility of Relativization bleeding the downstairs optional rule by virtue of the way these rules are formulated never gets realized here.

A FAT with the Obligatory First principle, however, predicts that there exist only grammatical surface strings where Relativization has applied, bleeding the optional downstairs rules; i.e. there exist only type 1 sentences, no type 2 ones.

4. 1. 4. 1. Relativization - Passive interaction in Turkish

We have seen already that Passive is an optional rule in Turkish.

Relativization, however, is obligatory when its structural description is met. The condition for its application involves crucially that the head of the relative clause must have a co-referent NP in the embedded sentence. (On the surface, the head noun is preceded by the modifier clause.)

The structural changes of Relativization are the following:

1. The embedded NP which is a co-referent of the head is deleted.
2. The embedded verb is changed into one of the two basic nominalized forms which are characteristic for relative clauses.[12)]

Both changes are obligatory, and any instance of a non-deleted co-referent NP, either in full or in Pro-form, is ungrammatical in a potential relative clause, and so is any form of the embedded verb which is not one of the two "relative participle" forms (either the suffix -En or -DIk attached to the embedded verbal stem).[13)] An example illustrating Turkish relative clause formation:

(17)a. [Fahri	kɨz-ɨ$_i$	öp-tü]	kɨz$_i$	
	girl-Acc.	kiss-Past	girl	

b. [Fahri-nin	Ø$_i$	öp-tüğ-ü]	kɨz$_i$
-Gen.		kiss-"non-Subject participle-Poss. 3.sg.	girl

'The girl whom Fahri kissed'

(17)b. is the only grammatical surface for the structure underlying it, i.e. (17)a., and either combination of the items in (18), where the embedded direct object, i.e. the target of Relativization, surfaces as a full NP or as a Pro-form, and where the embedded verb is finite or shows up in a nominalized form which is not appropriate for relative clauses is ungrammatical:

(18) * Fahri (-nin) {kɨz-ɨ$_i$ / on-u$_i$ / kendi-sin-i$_i$} {öp-tü / öp-mek / öp-me / öp-me-si} kɨz$_i$

'The girl who Fahri {kissed/to kiss/the kissing/ his kissing} {the girl/her/herself}'

(17) and (18) show that Relativization (with all the operations it involves) is obligatory, and therefore the Obligatory First convention predicts that it applies whenever its structural description is met.14)

Now consider (17)a., which satisfies the structural descriptions of both Relativization and Passive. But Relativization, as an obligatory rule, is made to apply first by the Obligatory First convention; it deletes the embedded direct object and thus makes the application of Passive to the embedded sentence impossible.[15)]

The prediction, then, is that there is no relative clause with an embedded passive sentence corresponding to (17)b., i.e. with the same head noun as in (17)b.

This prediction is clearly falsified by the following example:

(19) $\emptyset_i$ Fahri tarafından op-ul-en kız$_i$
"by Fahri" kiss-Pass.-"Subj.-Part." girl
'The girl who was kissed by Fahri'

(19) is perfectly grammatical. This result shows the prediction made by the Obligatory First principle is false, while it corroborates the Cyclic Principle: whatever the cycle-type of Relativization (i.e. whether it is postcyclic or cyclic), it will be ordered after Passive[16)], and thus it is predicted that underlying structures like (17)a. will yield two grammatical surface strings: one where the optional rule of Passive has not applied and where Relativization is the only one (of the two) to apply to the underlying phrase marker, and another one where both apply in the order Passive first, Relativization second. (17)b. corresponds to the first type, and (19) to the second.

Thus, we have seen in this section that the interaction of Relativization and Passive in Turkish provides us with still another counterargument to the Obligatory First convention; while this principle predicted that Passive will always be bled by Relativization, we have shown that it can also be counter-bled by it, i.e.

that the possibility of Relativization bleeding Passive is not realized because the order between the two rules can be reversed, in fact has to in order to derive constructions like (19).

In Turkish, it is particularly convenient to show clearly that the derivation of (19) must be distinct from that of (17)b., and that (19) cannot be derived from it (i.e. from (17)b.), but that it has to be derived from (17)a. This follows from the difference between the two participles which occur in relative clauses.

Assume that Relativization does not bleed Passive (i.e. counter to what we said in footnote 15), and that the Obligatory First principle does provide for the correct ordering. Then, both (19) and (17)b. will be claimed to be derived by applying Relativization to the underlying phrase marker, i.e. to (17)a. First, (17)b. will be derived, and then, by applying optional Passive next (assuming that it is applicable although the direct object has been deleted by Relativization) (19) is produced.

However, a problem arises with the correct choice of the "Relative Participle". Notice that at the time the Obligatory First principle makes Relativization apply, the target is the embedded direct object, and thus the "Non-Subject Participle" is chosen.

The result is fine for (17)b., where Passive has not applied. But it is the wrong choice for (19), where the embedded sentence has undergone Passive.

A readjustment rule could be formulated which would apply just in case Passive has applied to already relativized structures and which performs the necessary changes, i.e. the change of the "Non-Subject Participle" suffix on the verb to a "Subject-Participle" form.

It is clear that such a solution is highly ad-hoc, being devised just in order to correct the problem at hand, without any relevance to other structures in the language. Moreover, the effect of these patch-up rules is to yield a structure which is the one the CT predicts occurs.

Our conclusion, then, is the following:

The interaction of Relativization and Passive, the latter applying to the sentence embedded under the head noun, cannot be accounted for in a satisfactory manner by an unordered model with the Obligatory First principle. Even under favorable assumptions, i.e. that Passive is still applicable after Relativization (this assumption can by no means be taken for granted, as is discussed in footnote 15), this model needs cumbersome, superfluous and unrevealing machinery in order to yield the correct surface forms, while the CT accounts for them in a simple and straightforward manner, since it claims that the relevant criteria for the choice of Relative Participles are determined at the end of the embedded cycle.

4. 1. 4. 2. Relativization - SOR interaction

In this section, still another example of a downstairs optional rule feeding an upstairs obligatory rule (according to the CT), while being counter-bled by it (while predicted to be bled in a FAT with the Obligatory First principle) will be presented.

In the previous section, we established the obligatoriness of Relativization.

SOR is an optional rule in Turkish; given a matrix verb which triggers SOR, both sentences in which it has applied and those in which the embedded subject has not been raised are grammatical:

(20) ben Fahri-yi, [Ø Zeyneb-i öp-tü]
I ↑-Acc. -Acc. kiss-Past
san-ıyor-um
believe-Pres.-1.sg.
'I believe Fahri to have kissed Zeynep'
(SOR has applied)

(21) ben [Fahri-nin Zeyneb-i öp-tüğ-ün]-ü
I -Gen. -Acc. kiss-Fact.Nom.-Poss.3.sg.-Acc.
san-ıyor-um
believe-Pres.-1.sg.
'I think that Fahri kissed Zeynep'
(literally: 'I believe Fahri's kissing Zeynep')
(SOR has not applied)

Both sentences are grammatical, and they are synonymous. (For details of this rule and more information about embedded sentences, the reader is referred back to section 1.1.)

Let us now construct an example which meets the structural descriptions of both Relativization and SOR;

(22) $[_{S_1}$ ... $[_{S_2}$ ben $[_{S_3}$ adam$_i$ Zeyneb-i öp-tü $]_{S_3}$ san-ıyor-um $]_{S_2}$ adam$_i$ ... $]_{S_1}$
I man -Acc. kiss-Past believe-Pres.1.sg. man

(An input structure corresponding to something like:
'The man_i who I believe the man_i kissed Zeynep')

i.e.a structure where the source underlying both (20) and (21) is embedded under an NP which has a co-referent in the most deeply embedded sentence i such an example. The matrix verb is a "Raising-Verb", and Relativization out of sentential objects is not constrained in Turkish. The conditions for application of both rules are fulfilled.

The arguments here are similar to those in the previous section.

The sentence boundaries in (22) show clearly that the CT will automatically order any process taking place in the domain of S_2, and thus SOR, before any process taking place in the domain of S_1 and also before any post-cyclic processes. Since Relativization is either post-cyclic or, if it is cyclic, does not take place before S_1 is reached, it is automatically ordered after SOR.

In an unordered system where some orderings are specified by the Obligatory First convention, however, Relativization must apply before SOR. Since one of the effects of Relativization in (22) will be the deletion of the most deeply embedded subject, SOR will be bled, since the embedded subject which it would have raised is not present anymore. Therefore, a relative clause where a raised embedded subject is relativized is predicted not to exist by this theory.

This prediction is falsified by the following example:

(23) $[_{S_1}[_{S_2}$ ben-im, $Ø_i$ $[_{S_3}$ Ø Zeyneb-i öp-tü $]_{S_3}$ san-dığ-ım $]_{S_2}$
I-Gen. -Acc. kiss-Past believe-Rel.Part.(Non-Subj.)-Poss.1.sg.

adam$_i$ ... $]_{S_1}$
man

'The man who I believe to have kissed Fahriye'

(The absence of nominalization markers on the most deeply embedded verb öptü shows that SOR has in fact applied here.)

(23), then, has been derived by applying Relativization to the output of SOR, i.e. to a structure parallel to our (20). This is exactly what is predicted by the CT.

Let us contrast (23), where SOR has applied, with the output of Relativization to a structure where optional SOR has not applied:

(24) [[ben-im, $Ø_i$ Zeyneb-i öp-tüğ-ün-ü san-dığ-ım]
I-Gen. -Acc. kiss-Fact.Nom.-Poss.3.sg.-Acc. believe-Rel.Part.-Poss.1.sg.

adam$_i$ ...]
man

'The man who I believe has kissed Zeynep'
(literally: 'The man who I believe that has kissed Zeynep'
or: 'The man who I believe his having kissed Zeynep')

(Both (24) and (21), in whose derivations SOR did not apply, exhibit the typical signs of the "standard" Nominalization process for embedded sentences, which we discussed in cases like (2)a.)

(23) and (24) are both grammatical clauses, and they are synonymous. However, their surface structures

differ in the crucial details of the most deeply embedded sentence, making clear that SOR has applied in the derivation of (23) and not in that of (24).

Conclusion: There *are* derivations where optional SOR, potentially bled by obligatory Relativization, does apply and even feeds Relativization, i.e. increases the number of structures to which the latter is applicable. This situation is correctly predicted by the CT and not by the Obligatory First convention, which fails to generate grammatical relative clauses like (23). Therefore, the Obligatory First principle has to be abandoned in favor of the CT.

4. 2. Can an "Optional First" convention save the Free Application Theory?

Such a convention would make the generation of sentences like (16), (19) and (23) possible, while a FAT working with an "*Obligatory* First" convention failed to generate these grammatical strings.

However, this convention is unnecessary at best, because an unordered model with random sequential application of rules, not giving priority to either obligatory *or* optional rules in terms of order, can generate these strings, as well. Therefore, both conventions are superfluous, as far as these cases are concerned (while the Obligatory First convention has been shown to be false, as well).

Moreover, the "Optional First" convention is directly falsified by examples like SOR and Reflexivization on a lower clause interacting, since this convention would make derivations possible which start with an application of optional SOR which bleeds obligatory Reflexivization, and thus ungrammatical outputs would be generated. Therefore, the "Optional First" convention has to be rejected, as well.

4. 3. Conclusion: The Free Application Theory must be abandoned

The abandonment of the Obligatory First convention means that there is a very serious shortcoming to any system without ordering of rules, because the only conceivable definition of an obligatory rule in such a system, i.e. a definition without any mention of the relative order of an obligatory rule, has been shown to make wrong predictions in section 4. 1.: a model in which obligatory rules have to apply whenever their structural descriptions are met fails to derive important sets of grammatical structures. The necessity of abandoning the Obligatory First convention means at the same time the inability of unordered systems to characterize the notion of obligatory rule, which is a crucial notion.

Moreover, we have just said that even if the Obligatory First convention and thus the definition of obligatory rule as a "whenever-rule" is abandoned, a FAT cannot work because of cases like SOR and Reflexivization, which in their turn had motivated the creation of this convention. With or without this convention: the FAT seems to be beyond salvation and has to be abandoned in favor of the CT, which made the correct predictions in all the problematic cases.

Therefore, I conclude that the discussion so far has shown the inadequacy of the FAT and has, at the same time, established the existence of the cycle in Turkish.

5. A new kind of rule interaction: Simultaneous Application of rules

5. 0. Its nature and motivation

In all the different proposals we have been discussing so far, rules have been allowed to apply sequentially only, whether this application was ordered or not. However, this is not the only conceivable rule interaction. There is no a-priori reason why rules should not apply to the same phrase-marker all at once.

The question to be asked here is, however, why such a possibility should be considered at all.

If it could be proven that rules can only apply simultaneously, i.e. if all and only the grammatical sentences of natural language can be generated by simultaneous application of rules, then this would mean a welcome restriction on the power of transformations.

However, this cannot be shown, because there are clear cases in several languages where grammatical results are achieved only if rules apply to the outputs of other rules and not simultaneously, i.e. to the same inputs. Therefore, the best one might say is that rules can apply simultaneously in addition to applying sequentially. Thus, transformational power will be greater, and the proponents of a model which needs such a device will have to prove that this step is justifiable and that the restrictions, which might be necessary, are not ad-hoc.

The CT does not need to consider simultaneous rule application; it can handle all cases an unordered model cannot, and thus claim that the only way for rules to interact is sequentially.

An unordered model, however, has difficulties in accounting for cases where an optional rule precedes an obligatory one, as we saw in section 4. 1. A priori, one might propose that by applying the optional rule simultaneously with the obligatory rule which would otherwise bleed it, the optional rule can get a chance to apply.

Another reason why proponents of models with unordered rule application might be motivated to have rules apply simultaneously is the problem of the interaction of two obligatory rules.

For the CT, the interaction of obligatory rules belonging to different sentential domains does not present a problem, since their interaction is predicted by the ordering of the cycles in the domain of which each rule applies.

But in models where rules apply freely, such cases are in fact problematic, if one of the rules can bleed the other. Even in a model where the Obligatory First convention is adopted, which makes downstairs obligatory rules like Reflexivization invulnerable in the presence of rules like SOR, it is not clear how, say, Equi and Reflexivization are to interact, since the application of one obligatory rule prior to a second one will mean the violation of the convention from the "point of view" of this second obligatory rule.

Let us see how cases with interaction of two obligatory rules are handled by simultaneous application.

5. 1. How Simultaneous Rule Application works for two interacting obligatory rules

Example: Equi and downstairs Reflexivization in Turkish

We saw in previous sections how these two rules work, and we also justified their status as obligatory rules.

Consider a structure like the following, which can serve as input to both rules:

(25) Fahri_i [Fahri_i Fahri_i-yi yıka-] isti-yor
-Acc. wash want-Pres.

If Equi applies to this structure - and given the definition of Obligatory Rule in an unordered model as a rule which has to apply whenever it can, it is hard to conceive of a device which might always prevent it from applying - the embedded subject will be deleted and thus the trigger of Reflexivization in the embedded sentence. The result will be:

(26) *Fahri_i [$\emptyset_i$ Fahri-yi_i yıka-mak] isti-yor
-Acc. wash-Inf. want-Pres.

'* Fahri_i wants to wash Fahri_i'

which is clearly ungrammatical under the intended reading that matrix subject and embedded objects are co-referent.

However, simultaneous application of these rules will produce the correct result:

(27)	Fahri$_i$	[Fahri$_i$	Fahri-yi$_i$	yıka-	] isti-yor
		EQUI ⇓	REFLEX. ⇓	EQUI ⇓	
	Fahri$_i$	Ø$_i$	kendin-i self-Acc.	yıka-mak wash-Inf.	isti-yor want-Pres.

'Fahri$_i$ wants to wash himself$_i$'

5. 2. Evaluation of the Simultaneous Rule Application

We have seen now that the correct result is achieved *if* the two rules are applied simultaneously. But how is this application guaranteed to take place always? Since we know that rules can apply sequentially as well as simultaneously in an unordered model, derivations which result in the ungrammatical (26) will exist, as well, and must be excluded somehow.

Another legitimate question to ask here is how it will be predicted in general whether two given rules will interact sequentially or simultaneously.

Although I could not find any explicit statement about this in the literature, the following proposal is conceivable:

> Rules apply simultaneously whenever they can.17)

(A special part of this statement might run:

> Obligatory rules *have* to apply simultaneously, if the structural descriptions of the rules concerned are met at the same time (i.e. by the same phrase marker).)18)

Thus, the simultaneous application of Equi and Reflexivization is secured in all cases where they can apply to the same phrase marker. Moreover, no costly, extrinsic statement has been made about when rules interact simultaneously and when not; this seems to be an automatic consequence of the way they are formulated: if they can be applied simultaneously, they will; if not, they will apply sequentially. (However, cf. ftn. 17)

The contention that two obligatory rules have to apply simultaneously if both can apply to a given phrase marker can be regarded as a direct consequence of the way in which the notion of "Obligatory Rule" has been defined in unordered systems: as rules which have to apply whenever they have a chance to. If more than one rule of this character can apply to a given phrase marker, which means that all these rules have to apply to this same phrase marker, then it follows that they must apply simultaneously. (cf. ftn. 18)

Let us assume, for the time being, that simultaneous rule application does follow in predictable ways from other notions in an unordered model and that it is not costly to allow rules to apply simultaneously in addition to applying sequentially.

However, let us remind ourselves that the basic notion in an unordered model from which the idea of "obligatory simultaneous application" is derived is the definition of obligatory rules as rules which have to apply whenever they can. This definition was shown to be inadequate in sections 4. 1. and 4. 3. Therefore, the justification of the claim that obligatory rules will have to be applied simultaneously if their structural descriptions are met *at the same time* should not be taken for granted. Since we already know that an obligatory rule cannot always be successfully applied *whenever* it can, there is no reason for us to accept the claim that several obligatory rules will *automatically* apply simultaneously in case the structural description of each one of them is satisfied.

It is possible that this mode of interaction *will* yield the correct results; however, this will not be the automatic consequence of anything else in the model, but an ad-hoc solution, devised in order to evade problems of the sort we saw with the interaction of downstairs Reflexivization and upstairs Equi in Turkish.

Now, going back to the interaction of these two rules, we find that, although both are obligatory, they differ in one respect: if applied sequentially, Equi can leave priority of application to Reflexivization - the result will be grammatical, if it applies after Reflexivization. However, the rule of Reflexivization cannot be so generous - (26) shows that it cannot step back in favor of Equi, and it is in order to guarantee its application to the deep phrase marker directly (and not to the output of Equi) in each and every derivation where these rules are involved that the necessity of their simultaneous application has been posited.

It is not the case that Equi is always "invulnerable" in the presence of another obligatory rule. In order to see this, let us consider the interaction of downstairs Equi with upstairs Relativization.

(28) is an input which meets the structural descriptions of both Relativization and Equi:

(28)	$[_{S_1}[_{S_2}$ adam$_i$	$[_{S_3}$ adam$_i$	göl-de	yüz- $]_{S_3}$	iste- $]_{S_2}$	adam$_i$... $]_{S_1}$
	man	man	lake-Loc.	swim	want	man

(This input corresponds roughly to the English:

'The man$_i$ who wants for the man$_i$ to swim in the lake')^1

Consider a sequential derivation starting with Equi on the domain of S_2. The subject of S_3 will be deleted, and the verb of S_3 will get infinitive-morphology:

(29)a.	$[_{S_1}[_{S_2}$ adam$_i$	$[_{S_3}$ Ø$_i$	göl-de	yüz-mek $]_{S_3}$	iste- $]_{S_2}$	adam$_i$.. $]_{S_1}$
	man		lake-Loc.	swim-*Inf*.	want	man

(S_3, although it is a sentential object, is not marked with an Accusative suffix on its verb; this is an idiosyncratic property of structures with the matrix verb *iste-* = 'to want', to which Equi has applied, and has no bearing whatsoever on the issues under discussion.)

Now, let us apply Relativization on the domain of S_1. The subject of S_2 will be deleted, and its verb will be marked with the "Subject-Participle" morphology:

(29)b.	$[_{S_1}[_{S_2}$ Ø$_i$	$[_{S_3}$ Ø$_i$	göl-de	yüz-mek $]_{S_3}$	iste-yen $]_{S_2}$	adam$_i$.. $]_{S_1}$
			lake-Loc.	swim-Inf.	want-Subj. Part.	man

'The man who wants to swim in the lake'.

(29)b. is the correct surface form, and notice that its derivation as outlined above is completely in accordance with the CT.

However, in an unordered model with sequential application of rules, this derivation is possible, but not assured to take place always. There is nothing to stop the reverse ordering of rules, and the result will be ungrammatical:

Relativization in Turkish can delete (roughly) any NP which is a co-referent of the head noun and which is part of the modifier clause. Thus, in (26), it seems that both the subject of S_2 and of S_3 are candidates for deletion by Relativization. However, there are good reasons for considering only the subject of S_2 as the target of Relativization, as is explained in footnote 22.

Let us see what results we get by deleting the upstairs subject (i.e. the subject of S_2):

(30)a.

$[_{S_1} [_{S_2} Ø_i$	$[_{S_3}$ adam$_i$	göl-de	yüz-$]_{S_3}$	iste-yen $]_{S_2}$	adam$_i$ ...$]_{S_1}$
	man	lake-Loc.	swim	want-Subj. Part.	man

Now, Equi is checked for application, since S_3 is embedded under the Equi-verb iste-. However, the trigger for Equi-Deletion, i.e. the upstairs subject, is not present anymore. As we saw in section 4. 1. 3., in cases where Equi is inapplicable, the usual nominalisation process for embedded sentences is applied. In the case of iste-, this involves attachment of the Action-Nominal suffix to the lower verb (together with Genitive marking on the subject) and further affixation of the Accusative-marker onto the nominalised verb:

(30)b.

$*[_{S_1} [_{S_2} Ø_i$	$[_{S_3}$ adam-ın$_i$	göl-de	yüz-me-sin$]_{S_3}$i	iste-yen $]_{S_2}$	adam$_i$ ...$]_{S_1}$
	man -Gen.	lake-Loc.	swim-Act.Nom.- Poss.3.sg.-Acc.	want-Subj. Part.	man

'*The man$_i$ who wants the man$_i$ to swim in the lake'

It is interesting to note that (30)b. is ungrammatical only under the intended reading, i.e. under the reading that the head noun and the embedded subject are co-referents. If they are not, our example is grammatical and means: 'The man$_i$ who wants the man$_j$ (e.g. Bill wants John) to swim in the lake ...' This fact is interesting because it shows that nothing is wrong with the application of Relativization to (28) per se. What makes the result deviant is the subsequent inability of Equi to apply.

(Notice that, even if we do permit a derivation where Relativization deletes the downstairs subject (i.e. the subject of S$_3$) in (28) in spite of what is said in footnote 22, the situation is not improved; in this case, Equi will be inapplicable to the output of Relativization, since this time its target (and not its trigger) will already be deleted, and the grammatical (29) b. will not be derived under such a derivation, either.)

If these two rules are applied to (28) simultaneously, the correct result will be achieved:

(28)'	[adam$_i$	[adam$_i$	göl-de	yüz-]	iste-]	adam$_i$
	REL. ⇓	EQUI ⇓		EQUI ⇓	REL. ⇓	
	[Ø$_i$	[Ø$_i$	göl-de	yüz-mek]	iste-yen]	adam$_i$
			lake-Loc.	swim- Inf.	want- Subj.Part.	man

'The man who wants to swim in the lake...'

A convention according to which obligatory rules have to apply simultaneously if a given phrase marker satisfies the structural description of each one of them will guarantee that sentences like (29)b. are always generated, while ungrammatical strings like (30)b. are never produced. As we said above, there is no reason to believe that this is more than a convention. However, if it works for all such cases, it is worth discussing.

However, let us mention one more a-priori reservation about such a convention:

In the interaction of downstairs Reflexivization with upstairs Equi, we saw that the former was more "vulnerable" than the latter: its priority could not be taken away without getting ungrammatical results. The same happened with the interaction of downstairs Equi with upstairs Relativization: in a sequential application, it was again the downstairs rule which had to have priority.

In a Semi-Simultaneous model[19)], this "vulnerability" of downstairs obligatory rules with respect to upstairs rules cannot be characterized, while the prediction of this vulnerability is one of the characteristic features of the CT.

One might argue that this fact does not have to be interpreted as a shortcoming of an unordered model with a "simultaneous application convention" for applicable obligatory rules, because the mentioned vulnerability of downstairs rules will never be relevant as they will never have to "wait for their turn" as they have to in a sequential application, since their applicability will always be secured under this convention.

However, we shall see later on when we will be considering the interaction of three rules (instead of just two as we have been doing until now) that the application of vulnerable obligatory downstairs rules is not always guaranteed, in spite of the existence of the said convention. We are not going to discuss these cases in this introductory section, but their important feature should be mentioned nevertheless:

In these problematic cases, the vulnerable obligatory rule (e.g. Reflexivization) cannot be applied to the deep structure directly, but only later, fed by a certain rule (e.g. SOR). This vulnerable rule is formulated in such a way that it can be bled by some specific obligatory rule (e.g. Relativization).

Now imagine a deep structure phrase marker which satisfies both SOR and Relativization; the head noun of the relative clause is outside of the sentence domain to which SOR applies, thereby feeding Reflexivization. Obligatory Relativization, according to all conventions and definitions of unordered models, has to apply to the deep phrase marker and thus bleed Reflexivization; this will predictably lead to an ungrammatical result. The convention of simultaneous application cannot save Reflexivization here, since its structural description is not met at the time Relativisation is made to apply.

Now, after we have discussed our a-priori criticisms of and reservations about an unordered model with semi-simultaneous rule application and have also characterized the kind of counterexamples we are looking for, let us illustrate this discussion with "real" examples.

5. 3. Counterexamples to the "Semi-Simultaneous Rule Application Theory"

This section has three parts:

The first will present a counterexample to the claim that obligatory rules have to apply simultaneously. The second will reconsider the problematic cases of section 4. 1. and show that the more general part of the "Simultaneous Application Convention", i.e. that rules apply simultaneously whenever they can, either predicts ungrammatical strings or fails to account for the grammatical cases. The third will combine optional and obligatory rule interaction and bring examples where three rules interact: one optional and two obligatory.

5. 3. 1. Two obligatory rules which cannot apply simultaneously: Relativization and Non-Specific Subject Incorporation in Turkish

5. 3. 1. 1. Presentation of the rules

We have seen in section 4. 1. 4. 1. that Relativization is an obligatory rule, and we also mentioned the fact that there are two basic forms of the participle into which the embedded verb is changed in this process:

a. -En, if the subject is relativized (SP)
b. -DIk, if a non-subject is relativized (OP)

The b.-cases require two further steps: that the embedded subject be marked with a Genitive marker, and that the Object Participle (OP = Non-Subject Participle) be attached a Possessive suffix which agrees with the subject in person and number.

Knecht (1974) has shown that if a non-subject is relativized out of an Impersonal Passive sentence (these constructions typically lack surface subjects), it is the Subject Participle (SP) which is chosen and not the expected OP.[20)]

An explanation for this observation is given in terms of the morphological facts involved in the two opposed strategies. The OP requires the existence of a subject it can agree with. The SP, however, is not further marked and can therefore occur in the absence of a subject. Therefore, it is predicted that sentences without subjects will always trigger SP-formation whenever any NP is relativized out of them.

The same puzzling choice of "inappropriate" participle can be observed whenever non-subjects are relativized out of sentences with non-specific subjects. Here, too, the SP rather than the OP is chosen.

These facts can be explained in a unified manner if the claim that sentences with non-specific subjects are in fact subjectless can be justified.

Such a claim is, in fact, justifiable on independent grounds. Hankamer & Knecht (forthcoming) have posited the existence of a "Non-Specific Subject Incorporation Rule", which incorporates non-specific subjects into the verb. After the application of this rule, the embedded sentences have no independent subjects any longer, and the facts of relativization out of such sentences are automatically explained, without having to make the rule of Relativization sensitive to the "non-specificity" of subjects.

The cost of including this new Incorporation rule into the grammar of Turkish is compensated for by the unified account of various phenomena which otherwise might seem unrelated. To discuss these would take too long; but we can list some of them:

Morphological facts: Plural marking, otherwise obligatory, is blocked; so is Genitive marking, otherwise typical for embedded subjects;

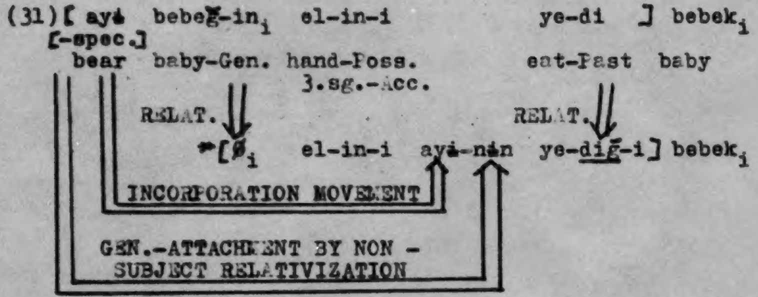
Word order facts: While the unmarked position of subjects in Turkish is sentence-initial, non-specific subjects have to stand to the immediate left of the verb (in a normally SOV-sentence, the order will be OSV); although word order is very free in Turkish, non-specific subjects cannot move away from this position; the idea of an incorporation into the verb explains why it should be the position to the immediate left of the verb which is the only possible one for non-specific subjects.

Blocked transformations: SOR and Passive do not apply to sentences containing non-specific subjects; neither can OP-formation for relativization.

The formulation of an obligatory rule of non-specific subject incorporation explains all these facts in a simple and elegant manner and shows explicitly that there exists a unified explanation for all of them. Otherwise, all the numerous and different processes listed above would have to be complicated and made sensitive to non-specific subjects; moreover, an account without an incorporation rule would make all these phenomena in Turkish appear to be unrelated.

5. 3. 1. 2. Simultaneous application of Relativization and Incorporation

According to the convention discussed in section 5. 2., these two rules have to apply simultaneously, since they are both obligatory. Let us take the following input structure, which satisfies the structural descriptions of both rules:



(31) [ayı [-spec.] bear · bebeğ-in$_i$ baby-Gen. · el-in-i hand-Poss. 3.sg.-Acc. · ye-di eat-Past] · bebek$_i$ baby

*[Ø$_i$ el-in-i ayı-nın ye-diğ-i] bebek$_i$

I am repeating the output line of (31) for the sake of convenience:

(31)' *[Ø$_i$ el-in-i hand-Poss. 3.sg.-Acc. · ayı-nın bear-Gen. · ye-diğ-i eat-OP-Poss.3.sg.] · bebek$_i$ baby

'The baby whose hand was bear-eaten'

Notice that the output is ungrammatical (in the intended reading that the subject is non-specific; only an interpretation where the subject is definite (i.e. the bear) is possible), and that it has been produced by simultaneous application, in the manner claimed to be obligatory for obligatory rules by Koutsoudas, Sanders & Noll (cf. ftn. 17) and Pullum (cf.ftn. 18).

The correct output is generated if Relativization can apply to the output of Incorporation:

(32) DS: [ayı bebeğ-in$_i$ el-in-i ye-di] bebek$_i$
[-spec.]

I : [bebeğ-in$_i$ el-in-i ayı ye-di] bebek$_i$
[-spec.]
(application of Incorporation-Movement)

II: [Ø$_i$ el-in-i ayı yi-yen]bebek$_i$
hand-Poss. bear eat-SP baby
3.sg.-Acc. [-spec]
(application of Relativization under the SP-strategy)
'The baby whose hand was bear-eaten'

This ordering is automatically predicted by the CT, since the domain in which Incorporation applies will be lower on the input tree than the domain to which the head of the relative clause belongs.

Thus, we have demonstrated that the convention according to which two obligatory rules have to apply simultaneously does not always predict the correct facts. The CT does, however, in all the cases we considered so far.

There is a way to save the Semi-Simultaneous FAT, namely by complicating the rule of Relativization in such a way as to block OP-formation in the presence of non-specific subjects. This is a complication which the FAT needs and the CT can do without.

Moreover, the Incorporation rule will still be needed, if the phenomena listed in the previous section are to receive a unified and explanatory account.

I conclude therefore that (31) is in fact an instance where two obligatory rules interact simultaneously and where an ungrammatical output is generated. Therefore, the claim that obligatory rules have to interact simultaneously is not only ad-hoc, as argued in section 5. 2., but wrong, as well.

5. 3. 2. Can optional rules interact simultaneously with obligatory rules?

Optional rules can certainly not be claimed to have to interact simultaneously with obligatory rules. But the more general convention in section 5. 2. claimed that in a Semi-Simultaneous FAT rules which can interact simultaneously will do so. Let us see now whether the problems which the FAT had with sequential rule application can be solved by simultaneous application of rules.

5. 3. 2. 1. A successful case: simultaneous application of SOR and Reflexivization

The interaction of these two rules has been discussed in section 3. 1. This is a case where simultaneous application generates the correct output and thus makes the "Obligatory First" convention of a sequential unordered model superfluous (in this case), although it does not contradict it, either. Let us see how this works:

(33) DS:	Emre	[ben$_i$	ben-i$_i$	yıka-dı]	san-ıyor
		I	I-Acc.	wash-Past	believe-Pres.

SOR (to DS) ⇓ ⇓ REFLEX. (to DS)

	Emre	ben-i$_i$	[kendi-m-i$_i$	yıka-dı]	san-ıyor
		I-Acc.	self-Poss. 1.sg.-Acc.	wash- Past	believe- Pres.

(33) cont.: 'Emre believes me to have washed myself'

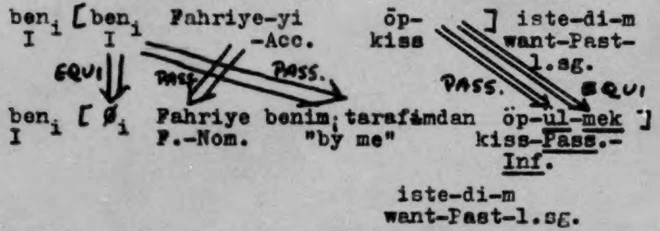
Can we conclude, then, that simultaneous application works always for the interaction of optional rules with obligatory ones?

Let us consider two of the problematic cases of section 4. 1. in order to see that such a conclusion would be erroneous.

5. 3. 2. 2. First unsuccessful case: simultaneous application of Equi and Passive

Let us take the structure underlying (16) in section 4. 1. 3., which meets the structural descriptions of both Passive and Equi, and let us apply these rules simultaneously:

(34)



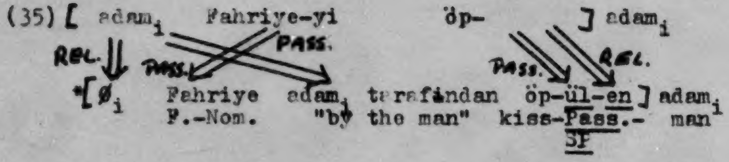
ben$_i$ [ben$_i$ Fahriye-yi öp-] iste-di-m
I I -Acc. kiss want-Past-1.sg.

* ben$_i$ [Ø$_i$ Fahriye benim$_i$ tarafımdan öp-ul-mek] iste-di-m
I F.-Nom. "by me" kiss-Pass.-Inf. want-Past-1.sg.

The "sum" of the structural changes these two rules perform on the same input structure produces an ungrammatical result. While the input structure meets the requirements of both rules, only the application of one at a time generates a correct sentence. The CT accounts naturally for this fact.

5. 3. 2. 3. Second unsuccessful case: simultaneous application of Relativization and Passive

Let us start with an input structure to which both Passive and Relativization can apply:



(35) [adam$_i$ Fahriye-yi öp-] adam$_i$

*[Ø$_i$ Fahriye adam$_i$ tarafından öp-ül-en] adam$_i$
F.-Nom. "by the man" kiss-Pass.-SP man

Attempted result: 'The man who Fahriye was kissed by'

The result is similar to the previous case: while Relativization deletes the embedded subject under coreference, Passive permutes it with the direct object. This peculiar result comes into existence because the two rules perform operations on the same structure and not to each other's output.

In this example, in addition to contradictory operations performed by two rules, another ungrammatical step is made: since the relativized constituent in the Deep Structure is an embedded subject, the SP is chosen. However, if the agent of a sentence to which Passive has applied is relativized, the correct choice is the OP. The CT, by predicting the order Passive first - Relativization second, naturally accounts for this choice.

5. 4. An attempt to save the Semi-Simultaneous FAT: the convention of "Contradictory Outputs"

In a class discussion, Jorge Hankamer has argued that counterexamples like (34) and (35) cannot constitute the basis of counterarguments against a FAT with semi-simultaneous rule application, since the outputs of the rules applied simultaneously in the cases under discussion were contradictory: rules like Equi and

Relativization, which specify that an embedded NP is deleted, are contradicted by the output of a rule like Passive which applies to the same input and retains this same NP. Therefore, according to Hankamer, simultaneous application would be blocked by a convention which does not let strings like (34) and (35) come into existence.

Incidentally, example (31), where the result of two simultaneously applying obligatory rules was ungrammatical, might be interpreted as falling under the domain of this convention, as well, since one of the effects of Relativization, namely marking the embedded subject with Genitive, might be claimed to contradict the notion of full Non-Specific Subject Incorporation.

Even if this convention of contradictory outputs is accepted as a non-ad-hoc statement which is inherent in any model of transformational grammar, i.e. in ordered models as well as in unordered ones (although ordered models do not have to rely on this statement explicitly, while a semi-simultaneous PAT does not seem to be able to survive without it), the counterexamples given do still constitute legitimate counterarguments:

There are two ways in which proposals for models in grammar can be refuted: either by showing that they generate ungrammatical strings, or that they fail to generate grammatical ones.

We tried to refute a semi-simultaneous PAT by the first strategy. But even if the given counterargument does not go through, the second strategy can be used, since, as the convention of Contradictory Outputs will block the simultaneous application of rules in the mentioned cases, there is no prediction made by the unordered model showing how to proceed instead.

If two rules cannot apply simultaneously, they have to apply sequentially. But if a certain phrase marker meets the structural descriptions of two rules, the problem of how to determine the order of application between these rules arises in any model with sequential rule application.

If the domain to which these rules are applicable is different for each one in terms of sentence nodes, the CT orders them automatically.

In a sequential FAT, however, priority in terms of order of application is undetermined. In parts 3 and 4 of this paper we saw that a model with unordered sequential application of rules fails to generate all the grammatical sentences the CT does, both in its version with the Obligatory First Convention and the one without it. There, the problematic cases involved one optional and one obligatory rule, the correct ordering of which could not be assured by the unordered sequential model, and in the present section we saw that these rules cannot be correctly applied simultaneously, either. For these cases, the second strategy holds: if Hankamer's convention is adopted, the unordered model is inadequate, since it fails to generate grammatical strings.

In addition to these cases, we saw a case where two obligatory rules could not successfully be applied simultaneously (i.e. example 31), and it is clear that such examples cannot be treated by the unordered sequential model in a satisfactory way, either: there is nothing in such a model to ensure a particular ordering between two obligatory rules (in this instance, Incorporation first, Relativization second). The correct ordering will be realised randomly, as well as the incorrect one. For such examples, then, an unordered model, even if it allows for simultaneous rule application, will be inadequate on grounds of the first strategy: it cannot block devious derivations in a principled manner (assuming that example (31) does not fall under the domain of the convention of Contradictory Outputs).

5. 5. Counterexamples to the Semi-Simultaneous Free Application Theory with three interacting rules

In the introductory section to part 5 of this paper, we tried to characterise the sort of counterexamples needed to show that even if there is a convention that two obligatory rules must apply simultaneously if the structural description of each is satisfied (if they can apply simultaneously in Hankamer's sense), that such a device is still inadequate.

In order to know where to look for such counterexamples, let us remind ourselves of the motivation for "Obligatory Simultaneous Application" of obligatory rules: to guarantee the application of a downstairs obligatory rule when an upstairs obligatory rule by which the downstairs rule can be bled is also applicable.

Examples for such a situation were the interaction of downstairs Reflexivisation with upstairs Equi, and of downstairs Equi with upstairs Relativisation. Although not discussed, another appropriate example would be the interaction of downstairs Reflexivization and upstairs Relativisation, as it is clear what the common denominator of all these cases is:

A downstairs obligatory rule is bled, if it applies after an obligatory upstairs rule which deletes either its trigger or its target. Such deviant orders of application cannot arise, if a formalism is devised which always blocks it; we saw that obligatory simultaneous application was successful in this, as far as the above-mentioned rules were concerned, because no contradictory outputs arose from their simultaneous application.

When does the above mentioned convention fail to force simultaneous application of the relevant rules?

The answer is: Whenever the downstairs, "vulnerable" rule can apply only to a derived phrase marker, while the upstairs obligatory rule with the bleeding potential is applicable to this derived phrase marker as well as to another phrase marker in an earlier stage of the derivation. Then, in an unordered model, this upstairs rule will be checked and applied before the environment for the vulnerable rule is even created,

and by the time the environment is created, the rule will be bled. The convention for obligatory simultaneous application cannot prevent such derivations, since it cannot "save" a rule whose structural description is not met at the point of derivation when its environment is "being destroyed" by the first rule.

I shall present three examples which exhibit the characteristic features presented above: First, the interaction of downstairs Reflexivisation, which is applicable only after SOR, and which is bled by upstairs Relativisation; second, the interaction of downstairs Equi, which is applicable only to the output of Passive, being bled by upstairs Relativization; and third, Reflexivization, applicable only after SOR, being bled by upstairs Equi.

5. 5. 1. First case: interaction of SOR - Reflexivization - Relativization

Consider the following input:

(36) $[_{S_1}[_{S_2}$ adam$_i$ $[_{S_3}$ adam$_i$ ay-a kadar gid-ip gel-miş $]_{S_3}$
man man moon-Dat. up to go-and come-Past
san- $]_{S_2}$ adam$_i$ ... $]_{S_1}$
believe man

Input: 'The man$_i$ [the man$_i$ believe [the man$_i$
go-Past to the moon and come-Past back]]]'

Here is the way a CT would proceed with the derivation:

First cycle (on S_3): nothing happens.

Second cycle (on S_2): the optional rule of SOR applies, since the verb of S_2 is a Raising verb. Now, the structural description of Reflexivization is met:

(37)a. $[_{S_1}[_{S_2}$ adam$_i$ adam-ı $^{S_3}[$ ay-a kadar gid-ip gel-miş $]_{S_3}$
man man-Acc. moon-Dat. up to go-and come-Past
san- $]_{S_2}$ adam$_i$ ... $]_{S_1}$
believe man

Since Reflexivization is obligatory, it has to apply:

(37)b. $[_{S_1}[_{S_2}$adam$_i$ kendin-i$_i$ $[_{S_3}$ay-a kadar gid-ip gel-miş$]_{S_3}$
self-Acc.
san-$]_{S_2}$ adam$_i$ ...$]_{S_1}$ 21)

Third cycle (on S_1): Relativization applies, deleting the subject of S_2 and attaching the SP-suffix to its verb:

(37)c. $[_{S_1}[_{S_2}\emptyset_i$ kendin-i$_i$ $[_{S_3}$ay-a kadar gid-ip gel-miş$]_{S_3}$
san-an $]_{S_2}$ adam$_i$ ... $]_{S_1}$
believe-SP man

'The man who believes himself to have gone to the moon and come back ...'

(37)c. is grammatical.

How would an unordered model with simultaneous rule application treat an input like (36)?

(36) satisfies the structural description of Relativization, which is an obligatory rule. Therefore, Relativization has to operate on (36) under any version of an unordered model; it deletes the subject of S_2, and attaches the SP-suffix to its verb.22) SOR can either apply to the output, or simultaneously with Relativization.

Obligatory Relativization first:

(38)a. $[_{S_1}[_{S_2}\emptyset_i$ adam$_i$ ay-a kadar gid-ip gel-miş$]_{S_3}$
san-an $]_{S_2}$ adam$_i$ ...$]_{S_1}$
believe-
Subj.Part.

Optional SOR second:

(38)b. $[_{S_1}[_{S_2}\emptyset_i$ adam-ı ay-a kadar gid-ip gel-miş$]_{S_3}$
man-Acc.
san-an$]_{S_2}$ adam$_i$ ...$]_{S_1}$

Simultaneous application of the two rules:

(36)

$[_{S_1}[_{S_2}$adam$_1$ $[_{S_3}$adam$_1$ ay-a kadar gid-ip gel-miş$]_{S_3}$ san-$]_{S_2}$ adam$_1]_{S_1}$,

REL. $\Downarrow$ SOR $\Downarrow$ REL. $\Downarrow$

(38)c.

*$[_{S_1}[_{S_2}$ $\emptyset_1$ $\underline{\text{adam-ı}}_1$ $[_{S_3}$ay-a kadar gid-ip gel-miş$]_{S_3}$ $\underline{\text{san-an}}]_{S_2}$ adam$_1]_{S_1}$

'*The man$_1$ (who) believes the man$_1$ to have gone to the moon and come back'

Both ways are possible - (38)b. and c. are the same.

Now that the subject of S$_3$ has been raised and has become a clause-mate of the higher subject, Reflexivization will have to apply. However, the trigger of this obligatory rule has already been deleted; thus, Reflexivization is bled, and the result is ungrammatical under the intended reading (although grammatical under a reading where the head of the relative clause and the raised subject are not co-referents).

This, then, is exactly the case we were looking for in this section. Even under the most favorable assumptions, an unordered model is unable to generate examples like (37)c. The "Convention of Obligatory Simultaneous Application of Obligatory Rules", which was created in order to prevent such situations, is completely helpless here, although,potentially, the conditions for its application are fulfilled: both Relativization and Reflexivization are obligatory, and, in general, they can be applied simultaneously (as we saw in section 5. 3. 2. 1.), without contradictory outputs blocking the derivation.

Notice that if SOR had a chance to apply first, as it would in a CT, the derivation would be saved by the

"Obligatory Simultaneous" Convention:

Let us go back to the derivation of (37)c. from (36) in a cyclic model. After (37)a. has been generated by the application of SOR, an unordered sequential model without any ordering statement will randomly generate the grammatical (37)c. as well as the ungrammatical (38)c., since there will be nothing to prevent the application of Relativization before Reflexivization to (37)b.

The "Obligatory First" convention is of no help here, since both rules are obligatory.

It is just for such cases that the "Obligatory Simultaneous" Convention is successful in preventing the deviant derivation:

(37)a.

$[_{S_1}[_{S_2}\text{adam}_i \quad \text{adam-ı}_i \; [_{S_3}\text{ay-a kadar gid-ip gel-miş}]_{S_3}\text{san-}]_{S_2}\text{adam}_i]_{S_1}$

REL. ⇓ REFLEX. ⇓ REL. ⇓

(38)d.

$[_{S_1}[_{S_2}\emptyset_i \; \underset{\text{himself-Acc.}}{\underline{\text{kendin-i}}}_i \; [_{S_3}\text{ay-a kadar gid-ip gel-miş}]_{S_3}\text{san-}\underset{\text{SP}}{\underline{\text{an}}}]_{S_2}\text{adam}_i]_{S_1}$

(38)d. is the same as our grammatical aim (37)c.

The problem for an unordered model, even with the option of simultaneous rule application, is that stage (37)a. cannot be generated for the "Obligatory Simultaneous" Convention to hold. Some device is needed which gives SOR a chance to apply and "holds back" obligatory Relativization (or any other obligatory deletion rule of similar effect, say, Equi) until the optional rule has yielded an output. However, it is clear that whatever this device would be, its character would be completely counter to the basic notion of models where rules apply freely whenever they can, without extrinsic ordering statements.

5. 5. 2. Second case: interaction of Passive - Equi - Relativization

Similar misfortunes occur under an unordered model if we attempt to derive sentences where Equi is the "vulnerable" obligatory rule, bled by another obligatory rule before the environment for its application has been created by a third rule.

Consider the following underlying phrase marker:

(39) $[_{S_1} [_{S_2}$ káz$_i$ $[_{S_3}$ Fahri káz-á$_i$ öp- $]_{S_3}$ iste- $]_{S_2}$ káz$_i$ ... $]_{S_1}$
girl F. girl-Acc. kiss want girl
'The girl$_i$ the girl$_i$ want Fahri kiss the girl$_i$ '

In a cyclic model, the derivation starts by considering S_3 first. Let us assume that we do want to apply the optional rule of Passive. We get:

(40)a.
$[_{S_1} [_{S_2}$ káz$_i$ $[_{S_3}$ káz$_i$ Fahri tarafándan öp-ül- $]_{S_3}$ iste- $]_{S_2}$ káz$_i$.. $]_{S_1}$
girl girl "by Fahri" kiss-Pass want girl

Now, on S_2, Equi is applicable, since the derived embedded subject is a co-referent of the subject of S_2 after the application of Passive downstairs. Since Equi is obligatory, it applies, and we get:

(40)b.
$[_{S_1} [_{S_2}$ káz$_i$ $[_{S_3}$ ∅$_i$ Fahri tarafándan öp-ül-mek $]_{S_3}$ iste- $]_{S_2}$ káz$_i$.. $]_{S_1}$
Inf.

On S_1, Relativization applies obligatorily, deleting the subject of S_2, and attaching SP-morphology to its verb:

(40)c.

$[_{S_1}[_{S_2}\emptyset_i\ [_{S_3}\emptyset_i$ Fahir tarafından öp-ül-mek$]_{S_3}$ iste-$\underline{\text{yen}}_{SF}]_{S_2}$ kız$_i]_{S_1}$

'The girl who wants to be kissed by Fahri'

The result is grammatical.

In an unordered model, however, there are various problems of the kind we saw in 5. 5. 1.

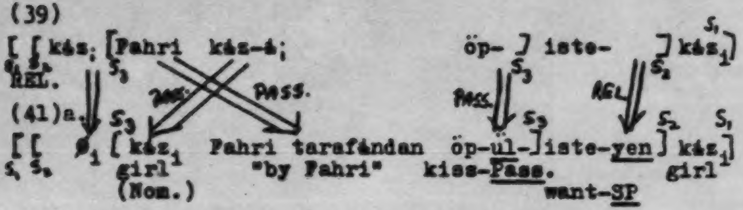
Starting with that stage of the derivation represented by (40)a., the "Obligatory Simultaneous" convention would hold, thus blocking derivations in which Relativization applies before Equi. We already saw in the derivation of (28)' that Equi and Relativization can apply simultaneously, and thus (40)c. would be produced.

However, deriving (40)a. from (39) is impossible in this model.

Relativization can apply to delete the subject of S_2.22) Since its structural description is met by (39), and also since it is an obligatory rule, there is no reason why it should not apply to this input.

Passive can also apply to (39); it can apply simultaneously with Relativization as well as sequentially, to its output. (Notice that here, it does not make any difference whether Passive is optional or obligatory, since it can apply simultaneously with Relativization, without contradictory outputs.)

Assume that these rules apply simultaneously. We get:



(39)

$[_{S_1}[_{S_2}$ káz$_i$ $[_{S_3}$Fahri káz-á$_i$ öp- $]_{S_3}$ iste- $]_{S_2}$ káz$_i]_{S_1}$

REL.

(41)a.

$[_{S_1}[_{S_2}$ Ø$_i$ $[_{S_3}$ káz$_i$ Fahri tarafándan öp-ül-$]_{S_3}$iste-yen$]_{S_2}$ káz$_i]_{S_1}$

girl (Nom.) "by Fahri" kiss-Pass. want-SP girl

Now, and only now, are the conditions for Equi met: the embedded object has become a subject. However, the trigger for its deletion has been deleted already, and Equi cannot apply. Usual nominalization applies, attaching the Action-Nominal marker to the verb of S_3 (as is appropriate for the matrix verb iste- whenever Equi cannot apply), and the Genitive-suffix to the embedded subject, and we get:

(41)b.

$*[_{S_1}[_{S_2}$Ø$_i$ $[_{S_3}$ káz-án$_i$ Fahri tarafándan öp-ül-me-sin-i$]_{S_3}$
girl-Gen. "by Fahri" kiss-Pass.-Act.Nom.-Poss.3.sg.-Acc.

iste-yen$]_{S_2}$ káz$_i$ ...$]_{S_1}$
want-SP girl

'*The girl$_i$ (who) wants the girl$_i$ to be kissed by Fahri'

The result is ungrammatical under the intended reading of co-referentiality, which is not surprising, since obligatory Equi did not apply at a stage where the usual conditions for its application were met. (Again, under a non-coreferential reading, (41)b. is grammatical.)

5. 5. 3. Third case: interaction of SOR - Reflexivization - Equi

In order to see that cases like those discussed in the previous two sections are not confined to instances where Relativization is the obligatory rule which is ordered last in a Cyclic model and which applies first in an unordered one, let us consider an example where Equi takes the place of Relativization in a case similar to the one we discussed in 5. 5. 1.

Consider the following derivation in a cyclic model:

(42) $[_{S_1}$ ben$_i$ de $[_{S_2}$ ben$_i$ $[_{S_3}$ ben$_i$ ay-a kadar gid-ip gel-miş$]_{S_3}$
I too I I moon-Dat. up to go-and come-Past
san-$]_{S_2}$ iste-r-di-m $]_{S_1}$
believe want-Aor.-Past-1.sg.

Input: 'I, too, would like I believe I go-Past to the moon and come back-Past '

First cycle: No transformations apply.

Second cycle: Optional SOR applies:

(43)a. $[_{S_1}$ ben$_i$ de $[_{S_2}$ ben$_i$ ben-i$_i$ $[_{S_3}$ ay-a kadar gid-ip gel-miş$]_{S_3}$
I-Acc.
san-$]_{S_2}$ iste-r-di-m$]_{S_1}$

Since the subject of S_2 now has a co-referential clause-mate, the structural description of obligatory Reflexivization is met; it has to apply, and we get:

(43)b. $[_{S_1}$ ben$_i$ de $[_{S_2}$ ben$_i$ kendi-m-i$_i$ $[_{S_3}$ aya kadar gidip gelmiş$]_{S_3}$
self-my-Acc.
san-$]_{S_2}$ iste-r-di-m$]_{S_1}$

Third cycle: Now the stage in the derivation is reached where the obligatory rule of Equi, (whose structural description was satisfied from the start) finally applies. It deletes the subject of S_2 and attaches the Infinitive-suffix to its verb:

(43)c. $_{S_1}[$ben$_i$ de $_{S_2}[\emptyset_i$ kendi-m-i$_i$ $_{S_3}[$aya kadar gidip
gelmiş$]_{S_3}$ san-mak$]_{S_2}$ isterdim$]_{S_1}$
believe-Inf.

'I, too, would like to believe myself to have gone to the moon and come back'

(e.g. in a context like: 'Good for Fahri if he believes himself to have gone to the moon and come back - I'd also like to be as crazy as he is and believe myself to have ...
... and come back, too')

Needless to say, (43)c. is grammatical.

In an unordered model, Equi would have to apply to (42) right away. SOR could apply either to its output, or simultaneously with it:

(42)
$_{S_1}[$ben de $_{S_2}[$ben $_{S_3}[$ben aya kadar gidip gelmiş$]_{S_3}$ san-$]_{S_2}$isterdim$]_{S_1}$
EQUI $\Downarrow$ SOR $\Downarrow$ EQUI $\Downarrow$
*$_{S_1}[$ben de $_{S_2}[\emptyset$ ben-i $_{S_3}[$aya kadar gidip gelmiş$]_{S_3}$san-mak$]_{S_2}$ister-$]_{S_1}$
I-Acc. -Inf. dim
(44)

Reflexivization cannot apply in (44), since the trigger for Reflexivization has already been deleted. The subject of S_1 cannot serve as a trigger, since, as was illustrated in footnote 6, Reflexivization in Turkish is clause-bounded (at least for 1.st and 2.nd persons), and to allow Reflexivization to apply over clause-boundaries in a structure like (44) would constitute a completely ad-hoc solution.

Again, the "Convention of Obligatory Simultaneous Application" for obligatory rules cannot help Equi to apply simultaneously with Reflexivization here, since Equi is not applicable yet at the time when Relativization is.

At this point, we should remind ourselves that in all the derivations discussed the CT yielded all and only the grammatical sentences.

5. 6. An additional, "morphological" counterargument against Simultaneous Application

It has been noted by Turkologists and traditional grammarians who have investigated Turkish that the order of suffixes is not arbitrary and is, in fact, rigidly constrained. For instance, it has been noticed that suffixes for Passive and Reflexives precede suffixes for participles and verbal nouns. However, no explanation for these facts have been offered in such studies.

To my knowledge, the only linguist to use facts of suffix ordering explicitly for syntactic argumentation has been Aissen in both her dissertation and her article in Linguistic Inquiry. She proposed a rule of Verb Raising to derive causatives in Turkish. Claiming that the rule is pre-cyclical, she notes the fact that suffixes introduced by various rules assumed to be cyclic (Passive, n-Reflexivization, iş-Reciprocal) cannot precede the causative suffix, introduced by her pre-cyclic Verb Raising rule. Since the CT orders cyclic rules after pre-cyclic ones, these facts are accounted for automatically, if we have a convention that rules which attach suffixes attach them to the *end* of the word only, at the appropriate stage of derivation.

Such a correspondence of order of transformations and order of suffixes is not confined to interactions with Verb Raising. For example, the obligatory order of the suffix for *Passive* before any one of the *Relative Participles* and before the *Infinitive*-suffix (in cases where Equi can apply only to the output of Passive, as exemplified by the cyclic derivation for (40)c.), and of the suffixes for *n*-*Reflexivisation* and *iş*-*Reciprocal* before the suffixes for *Relative Participles* and *Infinitive* can plausibly be claimed to reflect the order between the rules as predicted by the CT and motivated independently.

This correspondence is an automatic consequence of sequential rule application: the rules mentioned above each leave a suffix on the verb as part of the structural change they effect, and therefore the order of suffixes on the verb will reflect the order of rule application.

Thus, even in cases where simultaneous application of rules does predict the facts, the order of suffixes does not follow automatically from such derivations. On the other hand, it does follow from *ordered sequential* application, and an elaborate surface filter would be needed in order to let only the correct sequences come to the surface. Even so, no explanation will be available under this solution, since the way in which the *correct* sequences of morphemes are produced under simultaneous rule application will be the *same* as the production of *deviant* sequences, i.e. completely at random. The filter will be nothing more than a device encoding surface facts; in the crucial cases, it will just *repeat* those orderings among suffixes which are *predicted* by the CT and *explained* as results of ordered transformations.

As an example, consider the interaction of Reflexivisation and Equi. In example (27), we illustrated *kendi*-Reflexivization. *n*-Reflexivization is similar, with the difference that, instead of changing the co-referent direct object into a reflexive pronoun, this rule deletes it, and adds the suffix -*n* to the verb:

(45)a. Fahri$_i$ Fahri-yi$_i$ yáka-dá
-Acc. wash-Past

(45)b. Fahri$_i$ Ø$_i$ yáka-*n*-dá
wash-Refl.-Past

'Fahri washed himself'

As in the interaction of Equi with kendi-Reflexivisation, -n-Reflexivisation can also apply simultaneously with Equi:

(46)a. Fahri$_i$ [Fahri$_i$ Fahri-yi$_i$ yáka-] iste-di
EQUI ⇓ REFLEX. ⇓ REFLEX. ⇓ ⇓ EQUI
(46)b. Fahri$_i$ [Ø$_i$ Ø$_i$ yáka-*n*-*mak*]iste-di
wash-Refl.-Inf. want-Past

'Fahri wanted to wash himself'

However, there is no reason why this application should not produce an embedded verb of the form:
* yáka-mak-án .
Inf. Refl.

This sequence can be discarded by a filter, as we said, but this would complicate the grammar, without achieving any gain in terms of explanation.

Therefore, the CT should be preferred in the face of such examples.

6. Conclusion

The purpose of this paper was to defend the CT against various theories of unordered rule application and thereby also to establish the existence of the cycle in Turkish syntax. The paper had two main parts: a discussion of unordered rules applying sequentially, and a discussion of a theory in which rules can apply simultaneously as well as sequentially.

In the first part, a Random Sequential model was shown to be inadequate on two grounds: in its completely unrestricted version, it was shown to generate ungrammatical strings; in a version which includes the Obligatory First convention, it was shown to fail to generate important sets of grammatical sentences.

In the second part, the inadequacy of a Semi-Simultaneous PAT was demonstrated by showing that the problematic cases discussed in the first part could not be handled here either.

Even in the cases where a theory of Semi-Simultaneous unordered rule application did work, either additional devices like surface filters were necessary, or individual rules had to be complicated, while the account of the facts did not gain in explanatory power.

Thus, the main motivation for positing unordered models, namely to minimise extrinsic and ad-hoc statements about rules, was shown not to be realized by such models, while the CT had no difficulties in accounting for all the problematic (and unproblematic) cases in a natural and explanatory manner. Therefore, I conclude that the aim of this paper has been attained.

Footnotes

* I am greatly indebted to Judith Aissen and Jorge Hankamer, who spent much time in criticizing earlier versions of this paper and were generous with constuctive comments about content, organization, and style.

I should also thank Laura Knecht, Phil LeSourd and Jindra Toman for their patience and encouragement when presented with some initial, quite amorphous arguments about the main problems discussed here.

The responsibility for all remaining errors, unclarities, and awkward passages is mine entirely.

1) For example, McCawley's (1970) often quoted sentences:

i) Boris wants to appear to understand physics
ii) Boris appears to want to understand physics

where, in order to generate the first sentence, the order must be: Subject-to-Subject Raising first and Equi second, while the order must be reversed in order to generate the second sentence. (See also the second part of ftn. 2)

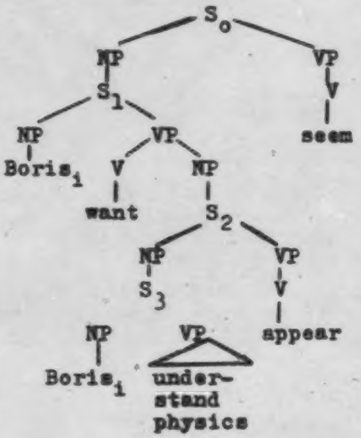
2) For example, Jacobs & Rosenbaum (1968) show that sentences like:

iii) I believe myself to have defended myself well (p. 241) have to be derived by two applications of Reflexivization with an intervening application of Subject-to-Object Raising; notice that Reflexivization has to apply once before and once after Subject-to-Object Raising.

Jorge Hankamer has pointed out to me that there are speakers of English for whom sentences like (iii), which contain more than one occurrence of the reflexive pronoun, are quite bad. The following sentence, pointed out by Hankamer, also illustrates the necessity of an A-B-A derivation:

iv) Boris seems to want to appear to understand physics.

The deep structure of this sentence is roughly:



It is clear that Subject-to-Subject Raising has to apply to S_0 and to S_2. On S_1, Equi has to apply. However, in order for Equi to be able to apply to S_1, the target of the deletion, i.e. the embedded subject, must be present in the sentence embedded immediately under S_1, i.e. in S_2. Therefore, Subject-to-Subject Raising must apply before Equi so as to raise the subject of S_3 to subject position of S_2.

On the other hand, the position of the trigger is important for Equi, as well. If SSR is *always* ordered before Equi and thus takes place in the domain of S_o at the same time as in S_2, the trigger of Equi will be removed from S_1 at the time Equi is allowed to apply; although S_1 now contains both an Equi-Verb and a candidate for deletion embedded directly underneath, its subject, the trigger of Equi-Deletion, will not be contained in S_1 anymore, and thus Equi will be, incorrectly, blocked.

However, if the subject of S_1 is allowed to undergo SSR *after* having triggered Equi, the correct result will be achieved.

Thus, it becomes clear that the derivation of our sentence involves two applications of SSR which are ordered differently with respect to Equi: once before, and once after. It is, of course, also clear that these two applications take place in different sentence domains; thus, while such an example falsifies a *strictly linear* model, it is comparible with a model with *cyclic* rule application.

3) I represents the class of the four high vowels (i, ɨ, u, u) and A the two non-high vowels (e, a) which can occur in suffixes in Turkish.

4) There exist also sentences in colloquial speech (Direct Speech Sentences) where the embedded clause does not undergo any changes at all, and where the subject, like a main clause subject, remains in the Nominative.

5) There seems to be a dialect where personal agreement markers do occur, suffixed to the embedded verb, even in the presence of raised subjects; this dialect will not be considered here.

6) In Turkish, exactly as in English, Reflexivization is: 1. clause-bounded, and 2. obligatory. This fact is illustrated by the following examples:

v) * ben$_i$ ben-i$_i$ sev-er-im
I I-Acc. like-Aor.-1.sg.
*'I like me'

vi) ben$_i$ kendi-m-i$_i$ sev-er-im
self-my-Acc.
'I like myself'

It follows that Reflexivisation is obligatory in a simplex.

vii) ben$_i$ [Emre-nin { ben-i$_i$ } sev-me-sin-]i iste-r-im
{ *kendi-m-i$_i$ } want-Aor.-1.sg.
I E. -Gen. { I-Acc. } like-Act.Nom.-
{ myself-Acc. } Poss.3.sg.-Acc.

'I want Emre to like me / *myself'

When a non-reflexive personal pronoun is not in the same clause as its antecedent, the sentence is grammatical. This means that Reflexivisation is clause-bounded.

7) Use of the interaction of Passive and SOR in A-B-A derivations in order to establish the existence of the cycle in Turkish, and the counterargument against Random Sequential rule application by demonstrating cases where downstairs Reflexivisation is bled by upstairs SOR is due to Aissen's article in LI.

However, her choice of example when demonstrating her point about A-B-A derivations was somewhat unfortunate, because it involves structural ambiguity, as is explained in Kornfilt (forthcoming); the possibility of two distinct derivations for her example led Pullum (1975) to reject the validity of Aissen's evidence for A-B-A derivations in Turkish, since he considered one sort of derivation only.

However, examples like (3) in this paper show convincingly that there are sentences in Turkish for which the only possible derivation is one of the A-B-A form, as illustrated by the derivation in (4).

Thus, the validity of Aissen's argument for the existence of the cycle in Turkish has been reestablished.

8) For discussion of "Obligatory First" in unordered models in the literature, consult, e.g., Ringen (1972), Pullum (1975), Fukawa (1975).

9) 3.rd person singular agreement on the verb manifests itself on the surface by Ø-marker.

(10) (16) requires a special context in order to sound completely natural; there are no doubts about its grammaticality, however.

11) We should bear in mind that throughout our discussion we are considering instances where a given phrase marker meets the structural conditions of two rules *at the same time*; here, Equi and Passive are considered in their interactions when applying to a phrase marker to which each one of them could apply. There are cases where the relationship between these same two rules is different; consider a case where the matrix verb is an Equi-Verb, but where the matrix subject is a co-referent of the embedded direct object and not of the embedded subject. Here, the input tree does not satisfy Equi. However, if Passive is applied, the conditions for Equi are fulfilled, which *then* applies obligatorily.

Here, Passive (rule A) *feeds* Equi,(rule B),without being potentially bled *by it* if the order were reversed, since Equi would just not be applicable before Passive. In a FAT, a second scanning *after* application of Passive would make Equi apply, since at this point of the derivation its structural description is met.

Since both the CT and the unordered sequential model with the Obligatory First principle predict the same ordering: A first, B second, such cases are uninteresting for our discussion.

Instances of a downstairs optional rule feeding an upstairs obligatory one are interesting only when this feeding rule could be potentially bled by the rule it is feeding, if the interaction takes place in the framework of a FAT. Such a case will be seen shortly with the interaction of Passive and Relativization.

12) For transformational accounts of Turkish Relative Clause Formation and more information about the choice of the correct "Relative Participle" see: Knecht (1974), Hankamer & Knecht (forthcoming), and Underhill (1972).

13)
These suffixes are used for both Past and Present tenses. For future, the suffix *-AcAk*, which designates the future in finite verbs, is used as a "Relative Participle" marker. The distinction between the two main forms is maintened according to the same criteria here, as well, and in ways which should not concern us in our discussion.

14) The suggestion to look at the interaction of obligatory Relativization and optional Passive in Turkish in order to find counterevidence to the Obligatory First convention was made by Judith Aissen.

15) Breckenridge (1975) has argued that Impersonal Passive constructions in both German and Turkish are derived by applying Passive to underlying phrase markers which lack direct objects. Therefore, it might be argued that the argument in the text that Relativisation bleeds Passive because it deletes the embedded direct object does not hold, and that Passive *can* apply to the objectless output of Relativisation.

However, a crucial fact to be mentioned here is a peculiarity of Impersonal Passives, which Breckenridge noticed too and which she discussed in the Appendix II of her thesis: in German, these constructions tolerate Agent-phrases (by-phrases) only in very special contexts; in general, they don't tolerate them at all.

Turkish seems to be even more restrictive in this respect - *no agent-phrases seem to be possible in Impersonal Passives*. However, (19) *does* exhibit an agent-phrase in the surface, and the result is perfectly grammatical *and* natural.

This fact shows clearly that, regardless of the controversy about whether Impersonal and Personal Passives are derived by the same *rule* or not, the surface constructions are different, and so are the restrictions under which the rule(s) can apply in order to derive these different surface constructions. Personal Passives *may* have agents, Impersonal Passives cannot; Personal Passives *must* be derived from true transitive structures with direct objects, while Impersonal Passives are derived from intransitive structures without direct objects.

In the light of everything which was said above, I forward the following hypothesis:

> If the phrase marker which is to undergo Passive lacks a direct object, it may not have a lexical subject; if it does, Passive is blocked.

There are two ways of looking at our problem:

1. The processes of Personal and Impersonal Passive formation are distinct; the hypothesis above is re-

levant for the latter only.

(19) is a Personal Passive; it has an agent-phrase in the surface, and it must have been derived from a source containing a direct object; therefore, in its derivation, an ordering of Relativization before Passive would bleed Passive, as we claimed in the text. This means that (19) cannot be derived in the framework of the Obligatory First hypothesis.

2. There is only one general process of Passive formation; our hypothesis is valid for the derivations of Personal Passives as well as of Impersonal ones.

If a direct object is deleted by a rule like Relativization out of a prospective Personal Passive construction, Passive does "try" to apply, but is blocked by virtue of our hypothesis.

Under this second point of view, Relativization does not bleed Passive directly, but Passive is blocked nevertheless: this time by virtue of our hypothesis.

Whatever the correct explanation is - (19) cannot be derived by the ordering of Relativization before Passive, which is the order predicted by the Obligatory First hypothesis.

16) The question whether there are post-cyclic rules and how the two models under scrutiny here might deal with them in general should not concern us. What's important here is the fact that in a CT, Relativization will always, automatically, be ordered after Passive: if it is viewed to be post-cyclic, it will apply after all cyclic rules and thus also after Passive. If it is taken to be a cyclic rule, then, in the derivation of sentences like (17)b. and (19), the domain of its application is higher on the input tree than that of Passive, and thus Relativization will have to apply after Passive.

17) Koutsoudas, Sanders & Noll (1974) support this proposal, however tentatively, in their footnote 5:

> "The most natural initial hypothesis about simultaneous and sequential application would seem to be simply that those rules that can apply simultaneously to a given representation do apply simultaneously; those that can't, don't."

Neither in this footnote nor elsewhere in their paper do the authors define or even explain what they mean by saying that some given rules might *be able* to apply simultaneously or not: what are the criteria? We will see later on that this is not a trivial question.

Another question which has to be asked is about the predictions made in conflict situations which arise when some given obligatory rules cannot apply simultaneously (whatever that means) to a given phrase marker, although this phrase marker meets the structural descriptions of each one of them. The authors operate under the assumption that an obligatory rule *must* be applied to any representation to which it *can* be applied (see their footnote 4); therefore, it should follow that obligatory rules whose structural descriptions are met by a given phrase marker should be applied simultaneously to this marker. But if they *cannot* be applied simultaneously, it is not clear how the derivation should proceed in this framework. Obviously, rules which cannot apply simultaneously will have to apply sequentially. But according to what principle will a sequential ordering be achieved? Any ordering which gives priority to an obligatory rule over another obligatory rule will violate the definition of obligatoriness with respect to the second rule, since this second rule will be stopped from applying to a representation to which it could have applied.

18) Pullum (p. 499) suggests this; once implicitly, when he says in his footnote 4 that he assumes SOR to be an obligatory rule and shows how SOR and Reflexivization apply simultaneously in the body of the text, claiming that this is the only possible way for these rules to apply in such a framework.

He is more explicit on p. 498:

> " ... it (the unordered semisimultaneous position) may be seen as a direct consequence of a very reasonable interpretation of the notion 'obligatory rule'. Suppose we define 'obligatory rule' within the framework of 'free order' theories as a rule such that if any line *i* in a derivation meets its structural description, line *i*+1 must be constructed according to its structural change. It follows automatically

> from this that if line *i* meets the structural description of obligatory rules A and B, line *i*+1 must be constructed according to the structural changes of both; in other words, A and B *must* (emphasis mine) apply simultaneously in mapping line *i* onto the line that immediately follows it."

However, remember that in sections 4.1. and 4.3. we refuted the claim that the definition of "obligatory rule" as given above could be taken for granted. Therefore, the notion of "simultaneous rule application", which is a derivatory notion developed out of the definition of obligatory rules, cannot be correct, either.

19) Term due to Pullum; "*Semi*-Simultaneous", since rules apply simultaneously as well as sequentially.

20) For more information about these facts and Turkish Impersonal Passives, see Knecht (1974) and Breckenridge (1975).

21) The ordering between SOR and Reflexivization is not automatically given by the CT in this case, since both apply on the cycle of S_2. But let us assume a CT where rules applying to the same sentential domain are unordered whenever possible and applicable whenever they can, without any extrinsic ordering statements among particular rules. Then, as we saw in section 2 of this paper, feeding relationships are produced automatically. In the present case, Reflexivization on S_2 can take place only if SOR has applied, and therefore this particular ordering does not have to be stated.

22) On first glance, it looks like there are two candidates for deletion by Relativization in each one of the underlying phrase markers (36) and (39): one in S_2 and the other in the more deeply embedded S_3. (Sentential objects are freely relativizable into in Turkish.)

However, Judith Aissen has pointed out to me that in such configurations only the higher one of the two co-referent NPs is relativizable in English. Turkish probably works the same way.

As pointed out to me by Leland George, this prediction is also made by Chomsky (1973; pp. 246-247)'s notion of *superiority*:

> "..., we say that the category A is 'superior' to the category B in the phrase marker if every major category dominating A dominates B as well but not conversely."

In our cases, out of the two candidates for relativisation the NP contained in S_2 is superior to the one in S_3.

Chomsky proposes the following condition on rule application:

> "(73) No rule can involve X, Y in the structure
>
> $$\ldots X \ldots [_{\alpha} \ldots Z \ldots - WYZ \ldots] \ldots$$
>
> where the rule applies ambiguously to Z and Y and Z is superior to Y."

For us, this means that the rule of Relativization can apply only to the superior NP_1 in S_2 (Chomsky's Z) and not to the NP_1 in S_3 (Chomsky's Y) so as to delete it under co-reference with the head noun in S_1 (Chomsky's X).

Notice also that, even if the further deeply embedded NP *were* relativizable, the discussion of such an option would be uninteresting for the problem at hand. Remember that the sentences we want to generate (i.e. (37)c. and (40)c.) clearly involve the application of SOR for the former and of Passive for the latter. If the lowest co-referent NPs are deleted by Relativization, these rules will be bled; therefore, even if such derivations should have grammatical outputs, these will not be the ones we are looking for. This is another reason not to consider such derivations.

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VERB AGREEMENT IN FOX

Philip LeSourd

Fox is an American Indian language spoken today in Iowa. It is a member of the Algonquian family, a group of more than two dozen closely related languages that were spoken in colonial times throughout much of the northeastern quarter of North America.

Like the other Algonquian languages, Fox is characterized by elaborate processes of verbal morphology, including a complex system of agreement markers. Both intransitive and transitive verbs are marked for properties of their subjects, and transitive verbs are indexed for one object as well.

Often, in fact, a verb is marked several times in agreement with a single noun. In such cases, each agreement marker indicates a different property or cluster of properties of the subject or object involved. For example, if one wants to say "we will kill him," with "we" including both the speaker and the person addressed, the form is

(1) k-i:[h]-nes-a:-pena
2-future-kill-DIR-1pl.
"We (inc.) will kill him." (Bull. 40:818)[1]

Subject and object pronouns are usually om~~p~~itted except for special emphasis, so (1) is a sentence as it stands. Both subject and object are expressed in the form of the verb. Here the subject is marked twice: the prefix k- in this form agrees with the subject and indicates that it includes the second person among its referents; the suffix

-pena tells us that the subject is plural and includes the first person. The suffix *-a:-* (known as a "direct" sign for reasons to be explained in section 2.3), gives us information about the object of the verb: it is used only with animate third person objects.

It could equally well have been the object that received multiple expression in the verbal morphology:

(2) n-i:[h]-wa:pam-a:-w-aki
1-future-see-DIR-3-3an.pl.
"I will see them (animate)." (Bull. 40:818)

Here the subject is indicated only by the first person prefix *n-*. The object, on the other hand, is marked three times: *-a:-* indicates an animate third person object as before, *-w-* shows that a third person is involved in this form as subject or object, and *-aki* informs us that this third person is animate and plural. Note that no two of these suffixes provide exactly the same information about the object of the verb, even though certain features of this noun are redundantly marked (its person and animacy).

This paper will explore the organisation of the system of agreement markers used with Fox verbs, with an eye to deciding what kind of syntactic agreement rules they reflect. The most striking point about the Fox verb agreement system is the fact that several independent inflectional processes appear to have to make reference to the relative status of the subject and the object of transitive verbs in a hierarchy involving all of the features of nouns that are reflected in verb agreement, with the exception of number. I will argue, however, that we need only assume that one rule is governed by this hierarchy: the familiar rule of Passive. The behavior of the various verbal agreement rules with respect to the hierarchy can then be explained by considering the interaction of these rules with Passive.

1. *Categories of Nouns and Pronouns*

Since Fox verbs agree with their subjects and objects in terms of categories that are marked in nominal morphology, it is necessary to know something about the distinctions that are made in the inflection of nouns and pronouns before setting out to explore the verb system.

There are two genders in Fox: animate and inanimate. The distinction is grammatical, rather than fully natural, since many animate nouns refer to inanimate objects: thus *meši:mini* "apple" is inanimate, but *ahpenya* "potato" is animate.

There are two numbers: singular and plural. Pronouns come in the usual three persons, with an extra distinction between first person inclusive plurals (inclusive of the second person) and first person exclusive plurals (excluding the second person).

Within the class of third person nouns (including third person pronouns) there is a further division into two categories: "proximate" and "obviative." Just how obviative status is assigned is a major syntactic problem in itself, but the basic idea is this. The most prominent third person within a span of discourse, the one that is most important with respect to the subject of that part of the discourse, is proximate. Other third person nouns or pronouns that are coreferent with this proximate third person are also proximate. All other third persons--those of lesser prominence--are obviative. In a case where only one third person is present, this third person is always proximate.

In a span of discourse that is "about" some third person--in some sense that has yet to be made precise--this third person is the most prominent third person, and hence the proximate noun. A third person noun or pronoun with a different referent will appear in the proximate form only when the subject of the discourse shifts. This means that changes in the status of a third person noun or pronoun signal changes in what the discourse is about at the moment. The distinction between proximate and obviative functions in this way as a kind of natural paragraph marking.

This distinction is morphologically marked, along with gender and number, only for animate nouns. Thus there are distinct proximate and obviative forms for neniwa "man," but *miši:mini* "apple" is inflected only for gender and number:

ANIMATE		INANIMATE
Prox. Sg. neniw-a	Obv. Sg. neniw-ani	Sg. miši:min-i
Prox. Pl. neniw-aki	Obv. Pl. neniw-ahi	Pl. miši:min-ani

There is one further rule for the use of the obviative that is outside the system of relative prominence sketched above: any noun with a third person possessor is obviative, regardless of its status in a discourse. Thus it is possible to say *ne-wi:w-a* "my wife," with the prefix *ne-* indicating a first person possessor and the suffix *-a* showing that the noun is proximate (as well as animate and singular). The corresponding form with a third person possessor is ungrammatical, however: **o-wi:w-a*, with the third person prefix *o-*. Instead the obviative is used: *o-wi:w-ani* "his wife."

2. *Verb Morphology*: *Bloomfield's System*

Fox verbs are usually described in terms of a system for the morphological analysis of all the Algonquian languages developed by Leonard Bloomfield (1946). This system is quite complex, but so are the facts it was designed to express. In this section I will review a few of the more fundamental aspects of Bloomfield's analysis which are relevant to questions about Fox verb agreement. In sections 3. and 4. I will propose a revision of one part of his scheme and argue that this revision permits a simpler description of transitive verb inflection. I will then turn to the matter of verb agreement itself and argue that the proposed change in Bloomfield's morphological analysis makes it possible to explain several facts about Fox verb agreement which otherwise appear mysterious.

2.1 Roots and Finals

Fox verbs fall into four classes according to their transitivity and the gender selection that they exercise. Any given intransitive stem will take only animate subjects or only inanimate subjects. The two divisions of intransitive verbs defined by this distinction are known respectively as Animate Intransitive (AI) verbs and Inanimate Intransitive (II) verbs.

Transitive verbs are similarly divided into two classes, but transitive verb stems select for the gender of their objects rather than that of their subjects. Transitive Animate (TA) stems are used only with animate objects, while Transitive Inanimate (TI) stems require inanimate objects. The animacy of the subject of a transitive verb is indicated by means of inflectional suffixes, but not through the form of the verb stem. (But see section 11. for discussion of the possibility that "inanimate subject" forms of transitive verbs may in fact be intransitives.)

Verb stems usually come in pairs: one for animates, the other for inanimates. Exceptions to this rule are verbs which, because of their meaning, can be used only with nouns of one gender or the other. Thus the stem *wa:pan*- of *wa:pan-wi* "it dawns" has no animate-subject counterpart.

A few stems such as *pya:*- "come" (as in *ne-pya:-pena* "we (exc.) come, we came") cannot be analyzed into component morphemes in any but a purely arbitrary way. Most stems, however, are morphologically complex--and often very complicated indeed. Bloomfield charted many of the processes by which stems are derived, but most of these complexities are not relevant to the verbal agreement system. As a minimum, a complex stem consists of a root plus a suffix chosen from a special class which Bloomfield christened "finals." A pair of stems which agree in meaning but differ in gender requirements will be morphologically distinct only in their last final. Thus the root *sanak*- "difficult" combines with the final -*esi*- to form an intransitive stem selecting animate subjects: *sanak-esi-wa* "he is difficult." The same root can be combined with the final -*at*- instead of -*esi*- to form an intransitive stem that takes only inanimate subjects; *sanak-at-wi* "it is difficult." A comparable pair of transitive verbs is formed by combining the root *wa:p*- "see, look at, watch" with the finals -*am*- (for animate objects), -*at*- (for inanimate objects):

wa:p-am-e:wa "he sees him," *wa:p-at-amwa* "he sees it."

Many different finals exist. Some, like those in the examples above, are of only vague significance or serve only to indicate the gender selection class of the stems which they form. Others add concrete elements of meaning to the sense of the stem. A pair of finals of the latter stripe is -*šin*-.(forming AI stems), -*sen*- (forming II stems), both meaning "lie, recline."

sa:ki- "exposed" + -*šin*-: *sa:ki-šin-wa* "he lies exposed"
sa:ki- + *tepe:*- "head" + -*šin*-: *sa:ki-tepe:-šin-wa*
"he lies covered all over except at the head"
a:tawa:- "wrong side up" + -*šin*-: *a:tawa:-šin-wa*
"he lies on his back"
sa:ki- + -*sen*-: *sa:ki-sen-wi* "it lies exposed"
a:tawa:- + -*sen*-: *a:tawa:-sen-wi* "it lies wrong side up"

A similar pair of transitive finals is -*o:m*- (forming TA stems), -*o:t*- (forming TI stems), "carry on one's back." In combination with the root *pye:t*- "come hither," these finals give forms like *pye:t-o:m-e:wa* "he comes hither carrying him on his back" and *pye:t-o:t-amwa* "he comes hither carrying it on his back."

2.2 *Orders and Modes*

A second division of Fox verbs into three "orders" cuts across the four-way classification on the basis of transitivity and gender selection. The order in which a verb is inflected depends on its syntactic setting. The Independent Order is used only in main clauses. The

Conjunct Order, on the other hand, is found in all embedded clauses. In (3) the matrix verb wa:pam-e:wa "he sees him" shows the Independent ending -e:wa which indicates action by a proximate third person subject on a less prominent third person object. The verb of the embedded clause is e:h-nes-a:niči "he kills him," with the "aorist" prefix e:h- indicating unspecified tense and the Conjunct ending -a:niči for action by an obviative subject on a still less prominent object.

(3) wa:pam-e:-w-a ineniw-ani
see-DIR-3-3prox.an.sg. man-obv.sg.
e:[h]-nes-a:-ni-č-i pešekesiw-ani
AOR-kill-DIR-obv.-3-IND deer-obv.sg.
"He watched the man kill a deer." (Bull. 40:831)

The Conjunct Order sometimes appears in main clauses in place of the Independent Order. This use of Conjunct forms is particularly common in traditional narrative style. Since the bulk of the published Fox material consists of myths and stories, this rather special use of the Conjunct will often appear in the examples in this paper.

The third order of the verb is the Imperative, used only in commands: pya:-no "come (sg.)!" Because the Imperative Order is limited to commands, it provides forms only for subjects that include the second person. Inanimate Intransitive verbs cannot take second person subjects, since all second persons are animate, and hence have no Imperative forms. With this exception, every Fox verb can appear in any of the three orders.

The orders are distinguished by the use of different sets of agreement markers as well as by their syntactic functions. Only the Independent Order uses personal prefixes, and there are differences among the orders in the agreement suffixes they use as well.: ke-pya "you (sg.) come" (Independent), e:h-pya:-yani "when you (sg.) come" (Conjunct), pya:-no "come!" (Imperative).

Both the Independent Order and the Conjunct Order are further subdivided into a variety of "modes." (The Imperative Order, if you like, contains only the single Imperative Mode.) All the modes of a given order use essentially the same set of agreement markers. The modes are distinguished, however, by the use of mode markers, non-agreement suffixes that occupy fixed positions among the agreement suffixes as parts of the inflectional endings of verbs.

The Independent Order contains three modes. The Independent Indicative Mode is not marked by any special mode suffix: ne-pya:-pena "we (exc.) come." The Dubitative Mode adds a meaning "probably" or "it seems" to the idea conveyed by the Indicative. It is marked by a suffix which takes the form -petoke in some parts of the paradigm, -toke in others: ne-pya:-pena:-toke "we probably come, it seems that we come." The third mode, which adds the meaning "conclusively" to the sense of the Indicative, is extremely rare and will not be cited in this paper.

There are eleven modes of the Conjunct Order. They have a variety of functions: there is a Negative Mode (*a:kwi* *pya:-čini* "he does not come"), an Iterative Mode (*pye:ya:-čini* "whenever he comes"--the change in the stem is due to a morphological process known as "initial change," an alteration of the first vowel), a Subjunctive Mode (*pya:-te* "if he comes"), and many others. The most common mode of the order is the Conjunct Indicative Mode, which appears in the embedded clause in sentence (3).

Bloomfield separated the Interrogative Mode (used in indirect questions) and the Prohibitive Mode (with the similar Potential Mode) from the rest of the Conjunct system and classes them as separate orders. The divergence of these modes is, however, more a matter of degree than a difference in kind. The Interrogative Mode, for example, is formed by adding two mode markers among the agreement suffixes: -*w*- and -*e:ni* (or -*e:hi*). Compare the Conjunct Indicative *wa:pat-am-a:n-i* "I see it," with the single mode marker -*i*, and the Interrogative *wa:pat-am-o-w-a:n-e:ni* "whether I see it," which uses two mode markers (the o which appears between the suffix -*am*- and the Interrogative -*w*- is epenthetic). I have therefore departed here from Bloomfield's analysis and included the Interrogative and Prohibitive Orders within the Conjunct Order.

One further point: Both the Conjunct Indicative Mode and the Interrogative Mode also occur with special participial forms (which, like the forms of the Iterative Mode, undergo the process of initial change): pye:ya:-ta "he who comes."

2.3 Theme Signs[2]

The inflection of transitive verbs is naturally more complex than that of intransitives, since the form of a transitive verb depends upon properties of its object as well as properties of its subject. Bloomfield analyzed the endings of transitive verbs into two layers of suffixes. The inner layer consists of a single morpheme which provides information about both subject and object. This suffix is chosen from a small class which Bloomfield termed "theme signs." The outer layer consists of the rest of the inflectional ending--a string of agreement markers and mode markers which usually resemble those used with intransitive verbs.

The idea is that a stem is augmented by the addition of a theme sign to form a "theme." The stem is already limited with respect to what objects it can take by the gender selection properties of its last component morpheme, its "final." The theme sign further specifies properties of the subject and the object in a manner that I will turn to immediately below. The theme derived by the addition of the theme sign to the stem is then further inflected much like an intransitive verb. Thus the stem wa:pam- (composed of a root wa:p- "see, look at" plus a TA final -am-) is augmented by the addition of the theme sign -*e:*- to form a theme *wa:pam-e:*-. This theme is then inflected by adding the suffixes -*w*- (for third person subject or object) and -*a* (a suffix used with both nouns and verbs to mark the presence of a proximate animate third person): *wa:pam-e:-w-a* "he (prox.) sees him (obv.)." A comparison of this form with the animate intransitive verb *pye:-w-a* "he (prox.) comes" reveals the similarity of the outer layer of inflection of the TA verb and its intransitive counterpart.

Theme signs, in Bloomfield's system, provide two kinds of information about the subject and the object of a transitive verb:

1) information about the *identity* of the object (and sometimes of the subject as well)
2) information about the *relationship* between the subject and the object in terms of three parameters: person, gender, and obviation.

Consider first the matter of information about the relationship between subject and object. The system by which this information is expressed makes crucial use of two categories which Bloomfield named "direct" and "inverse." Membership of a verb form in one or the other of these categories is determined by the relative positions of its subject and object on a hierarchy of person, gender, and obviation. This hierarchical organization of the set of nouns and pronouns is integrated with the system of relative prominence among third persons which determines the assignment of proximate or obviative status. The hierarchy extends this system, however, in two ways. First, it includes first and second person pronouns and the the unspecified ("PRO") subject. Second, it makes more distinctions among third persons than are expressed in the set of noun endings. Proximate and obviative must be distinguished for inanimates as well as animates, and the relative prominence of obviative animates plays a role.

Three basic principles underlie the hierarchical ordering of nouns and pronouns:

1) a ranking of the grammatical persons in the order:

$$\left\{\begin{matrix}1\\2\end{matrix}\right\} \quad \text{"PRO"} \quad 3$$

2) a ranking of the two genders:
   Animates outrank inanimates
3) the system of relative prominence among third persons (extended):
   Proximates outrank obviatives. More prominent obviatives outrank less prominent obviatives ("further obviatives").

These three principles, taken together, generate the following hierarchy:

		THIRD PERSON				
$\left\{\begin{matrix}1\\2\end{matrix}\right\}$	"PRO"	An. Prox.	An. Obv.	An. Further Obv.	Inan. Prox.	Inan. Obv.

"Direct" and "inverse" can be defined in terms of this hierarchy. A transitive verb form is direct if its subject is higher on the hierarchy than its object. If the subject is lower on the hierarchy than the object, the form is inverse.

There are five theme signs in Fox. Three of these serve to indicate whether a form is direct or inverse. The other two are used primarily in forms where both the subject and the object are first or second person. In this use, they do not involve the distinction between direct and inverse as Bloomfield formulates it.

The theme sign -*a:*- is used with TA verbs to indicate a direct form: *ne-wa:pam-a:-wa* "I see him," *wa:pam-a:-pi* "PRO sees him, he is seen." In both these cases the subject ("I" or "PRO") is above the object ("him") on the hierarchy. Hence the forms are direct. In direct forms of the Independent Order where the subject is third person (which means that the object must be a less prominent third person), -*a:*- is changed to -*e:*-: *wa:pam-e:-wa* "he (prox.) sees him (obv.)." This change is the result of a regular phonological process in Fox, although one that is morphologically governed, since it is restricted to forms with third person subjects in one of the three orders. The same process affects stem-final a: in intransitive verbs with third person subjects: *ne-pya:-pena* "we (exc.) come," but *pye:-wa* "he (prox.) comes."

Now "PRO" objects do not occur with Fox verbs. This means that the only possible objects of direct forms are third persons: nothing besides "PRO" and various third persons ranks below the first and second persons on the hierarchy. Since -*a:*- is used only with transitive verbs that select for animate objects, it follows that this theme sign occurs only in forms with animate third person objects. This suffix accordingly provides information about the identity of the object of a verb in which it occurs as well as about the rank of that object with respect to the subject of the verb.

The theme sign -*am*- is also used to indicate direct forms, but is restricted to use with TI verbs: *wa:pat-am-wa* "he (prox.) sees it." Several phonological rules disguise this theme sign in certain environments. Before a following suffix beginning with a p, -*am*- appears on the surface as -*a:*-: *ne-wa:pat-a:-pena* "we (exc.) see it." At the end of a word, and also before the third person Conjunct suffix -*k*, -*am*- shows up as -*a*-: *ne-wa:pat-a* "I see it," *wa:pat-a-k-i* "he (prox.) sees it (Conjunct Indicative Mode)." Since -*am*- is used only with verbs that take inanimate objects, this theme sign, like its TA counterpart, can be taken to indicate properties of the object of the verb in which it appears.

The theme sign -*ekw*- occurs only in inverse forms: *ne-wa:pam-ekw-a* "he sees me," *wa:pam-ekw-a* "he (obv.) sees him (prox.)." These forms are inverse because the object outranks the subject: first person is above third person on the hierarchy, and a proximate third person is superior to an obviative third person. The inverse theme sign, like the two direct signs, is sometimes subject to alteration by phonological rules. For example, the w of -*ekw*- is vocalized to o before a following non-syllabic segment (o and u are not phonemically distinct in Fox): *wa:pam-eko-wa:wa* "he sees you (pl.)." It may be possible in principle for -*ekw*- to be used with a TI verb: this would require an obviative inanimate subject and a more prominent inanimate object. Since I have seen no examples of this kind, however, I cannot rule out the possibility that -*ekw*- is restricted to TA verb forms. Within the class of TA verbs, however, -*ekw*- can appear with objects of any person (except "PRO") and with subjects of any person which can be outranked on the hierarchy. This theme sign is thus unique in providing no information about the person of the object.

The two remaining theme signs are -*i*- and -*ene*-. The latter appears in the Conjunct system without the final e: -*en*-. In the Independent Order, -*i*- and -*ene*- are used only in forms where both the subject and object are first or second person; -*i*- indicates action by second person on first (*ke-wa:pam-i* "you (sg.) see me"), while -*ene*- indicates action by first person on second (*ke-wa:pam-ene* "I see you (sg.)"). Within the Independent Order, therefore, these two theme signs provide information about the person of both subject and object and the relationship between them. In the Conjunct Order, however, the situation is more complicated. This problem will be the subject of the next section.

The reader may be wondering by this point what happens when both the subject and the object of a verb are at the same point in the hierarchy. The problem reduces to the question of what happens when subject and object are identical in reference, either in a reflexive relationship or in a case of reciprocal action. Two third persons can never be at the same level in the hierarchy unless their reference is the same, because of the system of obviation of less prominent third persons. The other possibility, subject and object overlapping in reference, does not occur. Perhaps the same constraint that reduces the acceptability of English sentences such as "I like us" is at work in Fox, but it should be noted that the Fox translation of this sentence would not simply be odd--it would be impossible.

Transitive forms for reflexives and reciprocals do not exist in Fox. Instead special intransitive forms are used. Reflexive stems are formed by adding the final -*etiso*- to TA stems. Reciprocals are formed in the same way, using the final -*eti:*-. Reflexive and reciprocal verbs corresponding to TI stems do not seem to occur. The derived stems are inflected exactly like intransitive verbs:

(4) mahkwa:či meko wi:h-anemi-pemen-etiso-y-an-i
quietly EMPH fut.-continue-take care-REFL-INTR-2sg.-IND

ket-ene:nem-ene
2-desire-1 on 2
"I desire that you take care of yourself quietly."
(AR 40:)

I will return briefly to the questions raised by reflexive and reciprocal forms in section 10.

One other question about the use of the theme signs needs to be answered. The hierarchy of person, gender, and obviation relates the subject of a transitive verb and its object. But which object? The object in question is a logical direct object only when no logical indirect object or benefactive object is present. There is a class of "double object" verbs which are used with a logical indirect or benefactive object as well as a logical direct object. Many of these verbs appear to be related to other transitive verbs and to be formed by the addition of a final -*aw*- or -*amaw*-. A few, however, do not use either of these finals. One common stem of this type is *mi:n*- "give." Whenever a logical indirect or benefactive object is present in a clause, it counts as the direct object for all purposes of inflection. The logical direct object in such cases is not indexed on the verb:

(5) ke-mi:n-ene-petoke
2-give-1 on 2-DUBIT
"I must have given it to you." (V 68)

Double object verbs will also receive further attention in section 10.

The main focus of this paper, however, will be on the nature and use of the five theme signs. The system which governs their distribution is one of the most intriguing aspects of the Fox verb agreement system, and one that makes the language seem quite unlike languages outside the Algonquian family. A careful analysis of the organization of the system of theme signs will suggest an explanation for many of their stranger properties and will also shed light on the workings of the other agreement processes of the language.

3. The Theme Signs -i- and -en(e)-

The theme sign -i- appears in TA forms of the Independent Order whenever the subject is second person (singular or plural) and the object is first person (singular or plural).:

(6) k-i:h -wa:wa:pam-i-pena ča:hi
2-fut.-look at (redup.)-2 on 1-1pl. EMPH
"You (sg.) will look at us (exc.)" (Bull. 40:818)

(7) kašina:kwa, k-i:h -kehkina-wa:pam-i-pwa
well 2-fut.-learn-look at-2 on 1-2pl.
"Well now, you just watch me and learn." (FT 44.23)
(Literally: "You will learn by looking at me.")

The sign is also used in the Imperative Order, where the subject is necessarily second person: neš-i-ko "you (pl.) kill me!" (cf. pya:-ko "you (pl.) come!").

In the Conjunct Order, -i- appears in all the forms that correspond to Independent forms in which -i- is used: the forms with second person subjects and first person objects.

(8) ka:ta na:kaš-i-hk-an-i
NEG follow-2 on 1-PROHIBITIVE-2sg.-PROHIB
"Don't you (sg.) follow me." (V 72)

(9) ne:w-i-hk-a:ke-he
see-2 on 1-POTENTIAL-1pl.-POT
"You (sg. or pl.) would see us (exc.)" (V 69)

The theme sign -*i*- also appears in Conjunct forms, however, where the object is first person but the subject is *not* second person. In (10) and (11) the subject is unspecified ("PRO"), while in (12) the subject is third person:

(10) na:hka na:hina:hi ne:tom-i-k i:ni ye:tok
also now summon-i-PRO then doubtless
e:h-ki:ši-tepowa:š-i-k-i ...
AOR-finish-decide about-i-PRO-IND
"And the time when I was summoned must doubtless have been the time when they had decided about me."
(FT 374.1)

(11) wi:h-taši-pemen-i:-k-e:ni
<...i-w-ek-e:ni^3
fut.-there-take care of-i-INTERROGATIVE-PRO-INTER
"where someone might take care of me" (V 70)

(12) we:kone:h ča:h we:či-nata-wa:pam-i-č-i
what EMPH therefor-try-see-i-3-IND
"Why was he looking for me?" (V 64)

In these examples, -*i*- is used instead of -*ekw*- in forms which, according to the hierarchy, are inverse: the first person outranks both "PRO" and all third persons.

The behavior of the theme sign -*en(e)*- is similar. In the Independent Order the morpheme -*ene*- occurs only in verbs with first person subject and second person object:

(13) ni:na meko n-i:h-owi:wi ket-ene-pwa[4] koči
I EMPH 1-fut.-have wife 2-(tell)-ene-2pl. EMPH
"I am the one to have her as wife, I told you."
(PT 304.16-17)

In the Conjunct Order, -*en*- is used in place of -*ene*- in forms for action by first person on second. This sign, like -*i*- occurs in inverse forms as well. Sentence (14) shows -*en*- in a verb whose subject is first person, while (15) and (16) show -*en*- in use first where the subject is "PRO" and then where it is third person.

(14) awita ke:ko:[h] i/n-en-ak-a:-ha[5]
NEG something tell-en-POT-isg.-POT
"I should not have told you anything." (PT 314.3)
(15) a:kwi mi:n-en-akw-ini
NEG give-en-1pl.inc.-NEG
"No one gave it to us (inc.)." (V 69)
(16) mani we:či-nenehke:nem-en-a:kw-e
this therefor-think-en-2pl.-IND
"This is why he thinks of you." (P 42.27-28)

Note also that the first person plural inclusive object in (15) counts as a second person object for the choice of the theme sign. This is generally the case: -*en*- is used whenever the object includes the second person; only when the object includes the first person but not the second does -*i*- appear.

The Conjunct forms in which -*i*- occurs with a first person object but without a second person subject, and those in which -*en*- is used with a second person object but without a first person subject, suggest that these endings are markers of the object alone. Now Bloomfield notes this fact and labels -i- and -en- "object elements" where they occur in Conjunct forms (e.g. Bloomfield (1927), p. 202). But if these morphemes by themselves provide information only about the person of the object in the Conjunct order, it seems unlikely that the corresponding morphemes -i- and -ene- of the Independent Order do anything else. If these theme signs indicate the person of the subject as well as that of the object in Independent forms, there is no more reason to expect them to show up as object markers in the Conjunct Order than there is to expect them to appear as subject markers.

Suppose then that we analyze the theme sign -en(e)- as a marker of objects which contain the second person. The theme sign -i- then marks the presence of an object that includes the first person (but not the second). It should be noted, however, that this analysis still leaves unexplained the fact that -i- and -ene- are not used in Independent forms when the subject is "PRO" or third person. I will return to this problem in section 12.

4. The Inverse Theme Sign -ekw-

The inverse theme sign occurs in Fox verbs only when the subject ranks below the object on the hierarchy of person, gender and obviation. In the Independent Order, -ekw- appears in all forms of this kind. In (17) and (18) the subject is above the object on the hierarchy, since proximate animates outrank obviative animates. The verbs are therefore direct, and the direct sign is used rather than -ekw-.

(17) sakipw-e:-w-a
bite-DIR-3-3prox.an.sg.
"He (prox.) bites him (obv.)." (V 65)

(18) wa:pam-e:-w-a ineniw-ahi
watch-DIR-3-3prox.an.sg. man-obv.pl.
e:h-pya:-ni-č-i
AOR-come-obv.-3-IND
"He (prox.) watched the men (obv.) come."
(Literally: "He watched the men while they came.")
(Bull. 40:831)

The inverse sign shows up in (19) and (20) where this relationship is reversed. Likewise, -ekw- is used in (21) where the subject is inanimate and the object is animate (but see section 11).

(19) kos-ekw-a e:h-maneto:wi-č-i
fear-INV-3prox.an.sg. AOR-be manitou-3-IND
"They (obv.) feared him (prox.) because he (prox.) was a manitou (spirit)." (FT 56.14)

(20) mi:n-ek-o:-toke
<...ekw-w-a-toke[6]
give-INV-3-3prox.an.sg.-DUBIT
"He (obv.) must have given it to him (prox.)." (V 68)

(21) se:kih-ekw-i-w-a
frighten-INV-inan.-3-3prox.an.sg.
"It frightens him." (V 67)

The inverse sign also occurs in forms of the Independent Order when the object is first or second person and the subject is of a lower rank. Sentence (22) gives an example of a form with third person subject and first person object, while (23) illustrates action by third person on second.

(22) ne-wa:pam-ekw-a   neniw-a
1-see-INV-3prox.an.sg. man-prox.sg.
"The man sees me." (Bull 40:847)

(23) ke-nenehke:nem-ek-o:-toke
2-think-INV-(3-3prox.an.sg.)-DUBIT
"He must be thinking of you (sg.)." (P 36.44)

The same pattern is found in forms for unspecified subject, showing that these too are inverse when the object is first or second person:

(24) ne-mi:n-ek-o:-petoke
1-give-INV-(3-3prox.an.sg.)-DUBIT
"Someone must have given it to me." (V 68)

(25) ke-mi:n-ek-o:-pena:-toke
2-give-INV-(3-3prox.an.sg.)-1pl.-DUBIT
"Someone must have given it to us (inc.)." (V 68)

The use of -*ekw*- in the Conjunct Order is completely parallel to that in the Independent Order as far as verb forms with third person objects are concerned. I will give only a couple of examples here. In (26) the subject is a proximate animate third person, while the object is an obviative animate third person. The form is a participle (or relative clause)--hence the extra obviative ending -*ni*. Sentence (27) reverses the relative ranking of subject and object found in (26): in the second example the subject is obviative and the object proximate. Thus the verb form in

(26) is direct (and takes theme sign -a:-) while that in (27) is inverse (and uses -ekw- instead).

(26) pye:n-a:-č-i-ni
bring-DIR-3-IND-obv.sg.
"the one (obv.) whom he brought" (Bull 40:830)

(27) manetow-an(i)... mehtose:neniw-ak
manitou-obv.sg. person-prox.pl.
e:h-kano:n-eko-wa:-č-i
AOR-address-INV-prox.an.pl.-3-IND
"The manitou addressed the people." (AR 40:402.4)

The inverse sign appears as -eko- in (27) rather than -ekw- as a result of the vocalisation of w.

The parallelism in the use of -ekw- between the Independent and Conjunct Orders breaks down in forms where the object is first or second person. In verb forms of this kind the Independent uses -ekw-, so that the theme sign gives no information about the person of the object. This information is indicated instead through the use of personal prefixes (which will be discussed in the following section). The Conjunct Order, however, does not use person-marking prefixes. As we saw in examples (10)-(12) and (14)-(16) in the previous section, -i- and -en- mark objects that include the first or second person throughout the Conjunct paradigms. This means, however, that forms for action by "PRO" or third person on first or second person are not marked as inverse, even though their subjects and objects stand in the inverse relation as it is defined by person-gender-obviation hierarchy. How can we account for the failure of the Conjunct Order to mark the inverse relation between subject and object in a class of cases whose analogues in the Independent Order are clearly inverse?

Consider the fact that the only cases where the Conjunct differs from the Independent in the use of -ekw- involve objects of the first or second person. This might not have been the case--it is conceivable that the Conjunct might fail to show -ekw- in some forms with third person objects. In fact, however, all cases in which -ekw- fails to turn up in logically inverse forms fall under a single generalisation: -ekw- is used in inverse forms just in case the first person object marker -i- and the second person object marker -en- are not.

We can both maintain a simple description of the class of forms in which -ekw- occurs and account for the interconnected distributions of -ekw- and the object-marking theme signs -i- and -en- if we assume that -ekw- is uniformly present in the underlying forms of all inverse verbs but is deleted by a morphological rule in the presence of either -i- or -en-:

(28) -ekw- Deletion:

$$\text{-ekw-} \dashrightarrow \emptyset \;/\; \underline{\quad} \begin{Bmatrix} \text{-i-} \\ \text{-en-} \end{Bmatrix} \quad \text{(where -i- and -en- are theme signs)}$$

(It is not crucial that -ekw- should precede the morphemes that trigger its deletion, but this order will make for a slightly simpler formulation of the rule that I will propose in section 6. for deriving inverse forms.)

This proposal makes a crucial departure from the theory of theme signs that underlies Bloomfield's work: it assumes that it is possible for a form to contain two theme signs in its underlying form. If there is a rule like (28) in the grammar of Fox, however, it follows immediately that -*ekw*- will never co-occur *on the surface* with either -*i*- or -*en*-. Moreover, any idiosyncrasies in the distribution of -*i*- and -*en*- in inverse forms will automatically be reflected in the distribution of -*ekw*-. Any place where -*i*- or -*en*- is missing in an inverse form, -*ekw*- will make it through to the surface instead of being deleted. The apparent divergence of the Conjunct Order from the Independent Order in the use of the inverse sign is thus reduced to the difference between the two orders in the way the the person of objects is marked.

The claim embodied in rule (28) is that an apparent irregularity in the distribution of -*ekw*- is due to a real irregularity in the distributions of -*i*- and -*en*-. Notice, however, that we could get the same result as far as the non-co-occurrence of -*ekw*- and the object markers -*i*- and -*en*- is concerned if we adopted rule (29) in place of (28):

(29) $$\left\{\begin{matrix}\text{-i-}\\ \text{-en-}\end{matrix}\right\} \longrightarrow \emptyset \ / \ \text{-ekw-}\ \_\_\_$$

If the grammar contained a rule like (29), we could assume that it is the distribution of -*ekw*- that is underlyingly irregular and the occurrence of -i- and -en- which is uniform in underlying forms. The object markers would then be missing in Independent forms where third person acts on first or second precisely because the inverse sign is used in these forms.

Rules (28) and (29) are not, however, of equal explanatory power. Rule (29) makes no prediction about the regularity of the use of -ekw- in forms with third person objects. This approach assumes that -ekw- simply does not have a regular distribution. Why, then, is this sign not missing in some forms for action on third person? Rule (28), on the other hand, explains why irregularities in the distribution of -ekw- are confined to forms with first or second person objects.

One further piece of evidence favors the idea that we should look to -i- and -en- as the underlying carriers of irregularity. This is the fact that these markers are not used to indicate the person of the object in inanimate subject forms of either the Independent or the Conjunct Order. (The Imperative Order, having forms only for second person subjects, has neither inverse forms nor inanimate subjects.) An example from the Interrogative Mode of the Conjunct Order is the following:

(30) se:kih-ekw-i-w-an-e:ni
frighten-INV-inan.-INTER-2sg.-INTER
"It must have frightened you (sg.)." (V 70)

The suffix -i- found here is a marker of the inanimate subject rather than a first person object marker. The fact that -ekw- is retained before this -i- suggests that the condition placed on rule (28) above is indeed necessary: the inverse sign is deleted only before another theme sign. The use of -an-, 2sg., in place of -en- as an indicator of the properties of the object in (30) also appears to lend support to the idea on which that rule is based: that -i- and -en- are distributed irregularly in underlying forms. A warning should be issued here, however. It is possible that the -ekw-i- of (30) may be more properly analyzed as a single morpheme, an AI final added to the stem se:kih- to produce an intransitive verb stem with the meaning but not the syntax of verb with an inanimate subject. I will return to this question in section 11.

Consider now, however, the implications for the analysis of verbs with first or second person as both subject and object of the existence of a rule like (28). If -ekw- is always deleted before the first and second person object markers, then either the forms for action by first person on second or those for action by second person on first might contain this sign in their underlying representations: in either case -ekw- would be deleted by the application of rule (28). Of course, -ekw- would be underlyingly present in the forms of one of these two classes if those forms were inverse--that is, if first and second person did not, after all, occupy the same level in the hierarchy.

Evidence from the use of personal prefixes which will be discussed in the following section suggests that we should in fact set the second person above the first in the hierarchy of person, gender, and obviation. The proposal requires that both (31) and (32) be analyzed as inverse forms:

(31) mi:n-en-ak-a:-ha
give-2obj.-POT-1sg.-POT
"I would give it to you." (V 69)

(32) ke-mi:n-ene-petoke
2-give-2obj.-DUBIT
"I must have given it to you (sg.)." (V 68)

Rule (28) must be modified slightly if this proposal is correct, since *-ekw-* must be deleted before *-ene-* in examples like (32) as well as before *-en-*. The modified rule is as follows:

(33) *-ekw-* Deletion (revised):

$$\text{-ekw-} \longrightarrow \emptyset \;/\; \_\_\_ \begin{Bmatrix} \text{-i-} \\ \text{-en(e)-} \end{Bmatrix}$$

, where *-i-* and *-en(e)-* are the first and second person object markers, respectively.

5. Person Marking: Personal Prefixes

Prefixes are used as agreement markers only in the three modes of the Independent Order. In intransitive verbs the prefix agrees with the subject. Only person is marked by the prefixes: they do not vary, for example, with number or gender. In the choice of a prefix, as in the choice between -*i*- and -*en(e)*- in object marking, second person is marked in preference to first person. A first person inclusive plural therefore counts as a second person. When the subject includes a second person, the prefix is *ke*-. If the subject includes the first person, but not the second, the prefix is *ne*-. When the subject is a third person of any kind, no prefix is used. A few examples may make the principles governing the use of the prefixes clearer:

(34) (ni:na) ne-pya
I 1-come
"I come; I came." (Bull. 40:817)

(35) (ki:na) ke-pya
you (sg.) 2-come
"You (sg.) come." (Bull. 40:817)

(36) (wi:na) pye:-w-a
he come-3-3prox.an.sg. (Bull. 40:817)
"He (prox.) comes."

(37) (ni:na:na) ne-pya:-pena
we (exc.) 1-come-1pl.
"We (exc.) come."

(38) (ki:na:na) ke-pya:-pena
we (inc.) 2-come-1pl.
"We (inc.) come."

(39) (ki:nwa:wa) ke-pya:-pwa
you (pl.) 2-come-2pl.
"You (pl.) come."

(40) (wi:nwa:wa) pye:-w-aki
they come-3-3prox.an.pl.
"They (prox. an.) come."

(41) (i:ni)　　pye:-mikat-w-i
that (in.) come-inan.-3-in.sg.
"It comes." (Bull. 40:817)

The variations in the form of the stem _pya:_- "come" are due to regular phonological processes: the change of stem-final a: to e: in third person Independent forms that we have encountered before and a rule by which any word-final long vowel is shortened. In the inanimate subject form _pye:-mikat-wi_ the extra ending _mikat_ is added before the inflectional ending -_wi_ because _pya:_- is an AI stem. Without an additional suffix, this stem will not accept inanimate subjects. The subject of this verb also differs in form from the other pronouns illustrated. This is because there is no inanimate pronoun *_wi:ni_ "it" corresponding to _wi:na_ "he, she." Instead the demonstrative is used. (the animate demonstrative _i:na_ "that (an.)" might have been used in place of _wi:na_ in (36).)

One other point about this paradigm deserves mention. This is the use of the suffixes -_pena_ 1pl. and -_pwa_ 2pl. While personal prefixes and the object markers -_i_- and -_en(e)_- mark the second person in preference to the first, -_pena_ is used _whenever_ the noun it agrees with includes the first person; -_pwa_ is used only to mark a second person plural which does not include the first person. The result is that a first person inclusive plural counts as a second person for purposes of choosing a prefix, but as a first person for the choice between -_pena_ or -_pwa_: _ke-pya:-pena_ "we (inc.) come." The opposing principles of person marking in the prefixes and in the person-number suffixes results in distinct forms for inclusive first plural, exclusive first plural, and second plural without requiring a three-way distinction in either prefixes or suffixes. In Conjunct forms, however, personal prefixes are not used. What we find instead is a set of three distinct person-number suffixes: *pya:-y-a:k-e* "we (exc.) come," *pya:-y-akw-e* "we (inc.) come," and *pya:-y-e:kw-e* "you (pl.) come" are distinguished only by the form of the second suffix of each word. These agreement suffixes will be considered in more detail in section 10.

Two phonological wrinkles affect the form of the personal prefixes. Before stems beginning with a vowel, an epenthetic t is inserted:

(42) net-ahapane:ni
1-laugh
"I laugh." (Bull. 40:750)

(43) ket-eš-awi
2-thus-do
"You (sg.) do thus." (FT 114,18)

The corresponding third persons would be *ahapane:ni-wa* "he laughs" and *iš-awi-wa* "he does thus" (the latter with change of initial e to i). The prefixes also undergo a special contraction when they precede the future prefix *wi:h-* :

(44) n-i:h-pya
1-fut.-come
"I will come." (Bull 40:817)

(45) wi:h-pye:-w-a
fut.-come-3-3prox.an.sg.
"He (prox.) will come."

All of the examples of the use of prefixes that have been cited so far are in the Indicative Mode of the Independent Order, but the same points apply to the Dubitative Mode as well:

(46) ne-pya:-petoke
1-come-DUBIT
"I must have come." (V 68)

(47) ke-wi:seni-pwa:-toke
2-eat-2pl.-DUBIT
"You (pl.) must have eaten." (V 68)

(48) wi:seni:-toke:h-iki
eat-DUBIT-prox.an.pl.
"They (prox. an.) must have eaten." (V 68)

Throughout the Independent Order, prefixes agree in person with the subjects of intransitive verbs.

When we turn to transitive verbs, however, we find that they sometimes use prefixes in agreement with their subjects--but sometimes use the prefixes to mark the person of their objects instead. The classes of subjects and objects involved are not simply arbitrary: they precisely follow the division of transitive forms into the classes direct and inverse.

In direct forms, prefixes are used exactly as with intransitive verbs. The prefix agrees in person with the subject:

(49) ni:na i:n-a net-ano:hka:n-a:-w-a
I that-prox.sg. 1-employ-DIR-3-3prox.an.sg.
"I myself employ him (prox.)." (AR 40: 402.19)

(50) k-i:h-nes-a:-w-a (i)-pi
2-fut.-kill-DIR-3-3prox.an.sg. say-PRO
"Someone says, "Kill him."[7] (V 73)

(51) ot-anemo:h-em-ahi wa:pam-e:-ni-w-ahi
3-dog-POSS-obv.pl. watch-DIR-obv.-3-3obv.an.pl.
mahwe:w-ahi
wolf-obv.pl.
"His dogs (obv.) watched the wolves (further obv.)."
(Bull 40:832)

In inverse forms it is the object whose person is recorded in the form of the prefix:

(52) nešihka mekoho ki:na:n e:š-iso-y-akw-e IND
alone EMPH we(inc.) thus-call selves-INTR-1pl.inc-
ke-ketemina:-ko-na:n-a[8]
2-bless-INV-1pl.-3pr.an.sg.
"He blesses only us (inc.) who call ourselves thus
(i.e. only our clan)." (P 56.17-18)

(53) ne-wa:pah-eko:-ki meko ma:h-aki
<...ekw-w-aki . . .EMPH this-prox.pl.
1-awaken-INV-3-3prox.an.pl.
"These (creatures) are awakening me." (FT 134.15-16)

In (52) the object of ke-ketemina:-ko-na:na "he blesses us (inc.)" contains the second person, so the prefix ke- is used. In (53) the object of the verb, the pronoun ni:na I, has been deleted, as unemphatic pronouns usually are, but its person is indicated by the prefix ne-. In both these cases, if the choice of prefix depended on the person of the subject, no prefix would be used, as in (56).

The use of personal prefixes when both subject and object are first or second person provides evidence for the suggestion made in the previous section that second person should be ranked above first person in the hierarchy of person, gender, and obviation. When a second person subject acts on a first person object, the prefix agrees with the subject:

(54) ke-mi:š-i-petoke[9]
2-give-1obj.-DUBIT
"You (sg.) must have given it to me." (V 68)

When these rôles are reversed, the prefix agrees with the object:

(55) ke-mi:n-ene-petoke
2-give-2obj.-DUBIT
"I must have given it to you (sg.)." (V 68)

Forms for action by second person on first person thus behave like direct forms with respect to prefix choice, while those for action by first person on second behave like inverse forms.

Of course, in both cases it is the second person whose involvement is indicated by the form of the prefix. This is consistent with the fact that second person is marked in preference to first person when a prefix is chosen to mark agreement with one noun which includes both the first and the second persons among its referents. The use of ke- in both (54) and (55) does not, however, follow from this fact, since what is needed in cases of this kind is a principle for deciding between two possible triggers of the agreement rather than between two ways in which one noun might act as a trigger. By setting second person above first in the hierarchy, we define forms for action by second person on first to be direct, while making forms for action by first person on second inverse. We can then avoid having to add any extra statement to the grammar to handle cases like (54) and (55) simply by making forms of this kind subject to the mechanisms of the grammar that determine the differences in distribution of the personal prefixes in direct and inverse forms. This approach requires us to come up with an explanation for the absence of the inverse marker -ekw- in examples like (55) where first person acts on second, but we have already seen evidence (in section 4.) that a rule deleting -ekw- in this environment is required independently of this class of cases.

If we revise the ranking principles which determine the hierarchy of person, gender, and obviation so that first and second person now differ in rank, we can state the basis of this system as follows. The modified hierarchy differs from that given above (p. 14) only at the top.

THREE RANKING PRINCIPLES

1) Person Ranking: 2 1 "PRO" 3

2) Gender Ranking: Animates outrank Inanimates

3) Relative Prominence of Third Persons

Proximate outranks Obviative

Obviative outranks Further Obviative

THE HIERARCHY

			THIRD PERSON				
2	1	"PRO"	An.	An.	An.	Inan.	Inan.
			Prox.	Obv.	Further Obv.	Prox.	Obv.

Now simply defining the categories direct and inverse according to this modified hierarchy makes it possible to *state* the agreement process that shows up in the use of the personal prefixes: the prefixes mark the person of the subject in direct forms (and in intransitives), the person of the object in inverse forms. Such a statement cannot, however, *explain* this use of prefixes. Why should this agreement process refer to the hierarchy (or, equivalently, to the direct/inverse distinction defined by the hierarchy)? And why should the rule use the hierarchy in this way? It is logically possible, for example, that prefixes might be used in just the opposite way: they might mark objects in direct forms and subjects in inverse forms. In the next section I will attempt to give an answer to these questions.

6. *Passive*

In section 3. I argued that the use of the theme signs -*i*- and -*en(e)*- in forms of the Conjunct Order suggests that these morphemes should be viewed as performing only one of the two functions which characterize theme signs in Bloomfield's system of morphology: they provide information about the identity of the objects of the verbs in which they occur (by marking the person of the object), but not about the relationship between subject and object. In section 4. I departed even further from Bloomfield's scheme by proposing to set up -*ekw*- uniformly in the underlying representations of all inverse forms, a move which requires that we suppose that some verb forms underlyingly include two theme signs. The motivation for this approach was the observation that -*ekw*- is missing in inverse forms only when either -*i*- or -*en(e)*- appears, an observation that is formally expressed in rule (33). This rule gains support from the fact that it makes it possible to generalize the definitions of the categories direct and inverse so that they encompass all transitive verb forms, a generalization which in turn permits us to describe the use of personal prefixes in forms involving first or second persons as both subject and object in the same terms as in other transitive forms.

This gradual erosion of the original concept of the theme sign suggests, however, that we re-examine the role of the inverse sign. I have noted above (p. 17) that the inverse theme sign is unique in that it provides no information by itself as to the identity of the object of a verb in which it occurs. What makes the inverse sign different?

We saw in the previous section that the use of personal prefixes in the Independent Order appears to make crucial use of the distinction between direct and inverse forms. The particular way in which this agreement process makes use of the distinction is interesting: it treats the objects of inverse forms like the subjects of direct forms and like the subjects of intransitive verbs. We can explain this fact and also account for the difference in function between the inverse sign and the other theme signs if we pursue a suggestion originally put forward by William Jones in the first systematic description of Fox grammar, the article "Algonquian (Fox)" in the *Handbook of American Indian Languages* (1911): all inverse forms are passives. If inverse forms are passives, it is not surprising that their objects should behave like subjects with respect to a rule of agreement. This is in fact a defining characteristic of passive forms. Nor is it surprising that -*ekw*- should not directly reflect the properties of any object. This is what we would expect of a passive voice marker.

Now Jones classed inverse forms as passives, but he also chose to label what I have been calling "unspecified subject forms" as "indefinite passives." The two types of forms are clearly distinct: unspecified subject forms are inverse with objects of either of the first two persons (both first and second person outrank "PRO"), but they are direct with third person objects ("PRO" ranks above all varieties of third persons). Bloomfield in his Algonquian studies quite properly chose to apply the term "passive" to only one of these two kinds of constructions--but he chose the "indefinite passives." What follows from the other choice?

First of all, it should be noted that there is no option as to whether a form is direct or inverse. If the subject is higher on the hierarchy than the object, the form is direct and -ekw- cannot appear. If the object outranks the subject, the form is inverse and -ekw- is obligatory (although in the environments in which -ekw-Deletion can apply this morpheme will not appear on the surface).

If inverse forms are passives, then the passive rule must in some manner be constrained by the hierarchy of person, gender, and obviation. This could be accomplished by regulating the application of the rule or by means of an output constraint of some kind. The latter approach will encounter some difficulties, however. To determine after the fact that Passive has applied improperly, it would be necessary to determine that the underlying subject outranked the underlying object after the underlying subject had lost this status. To carry out such a comparison of ranks, some global device would be necessary whenever a clause contained other nouns as well as a subject and an object: after Passive, there is nothing to distinguish a former subject from a noun which was never either subject or object. The idea of controlling Passive through a condition on its application therefore seems more promising at the moment.[10] Passive might, then, be formulated as follows:

(56) Passive: The object of a verb becomes its subject; -ekw- is added immediately after the stem.
Condition: Passive is not applicable if the subject of the verb ranks above the object on the hierarchy of person, gender, and obviation (p. 39). Passive is obligatory if the object ranks below the subject.

This formulation of Passive, it should be noted, is only intended to be suggestive. A more formal statement of the rule must await further investigation of the grammar of Fox. The object in question is, as before, the object which is indexed on the verb by other processes of verbal inflection: the logical indirect or benefactive object if there is one, the logical direct object otherwise.

Something in the grammar of Fox must run on the hierarchy. What I am suggesting is that we can get away with constraining only one rule to act as the hierarchy dictates--if we suppose that this rule is Passive. If this proposal is correct, we can expect to find two kinds of evidence in its favor:

1) If inverse forms are passives, their logical objects should show syntactic behavior which elsewhere is characteristic of subjects.
2) If inverse forms are passives, their logical objects should fail to show syntactic behavior which elsewhere is characteristic of objects.

The use of personal prefixes provides evidence of the first kind: prefixes agree in person with the objects of inverse forms. Elsewhere--in direct forms and in intransitive verbs--the prefixes agree in person with subjects. (Correspondingly, the logical subjects of inverse forms do _not_ behave like subjects with respect to the use of prefixes.) We can account for this fact very simply if we suppose that personal prefixes are added to Fox verbs by a syntactic agreement rule which applies only after Passive:

(57) _Subject Person Agreement_: If the subject of a verb which is inflected in the Independent Order includes the second person, add the prefix _ke_-. If the subject includes the first person, but not the second person, add the prefix _ne_-.

Since the rule follows Passive, the subject it sees will be the logical subject only in direct forms (where no changes in the status of the subject and object have taken place) and in intransitives. In inverse forms, the rule will find only subjects created by the application of Passive. Thus the agreement process that shows up in the use of personal prefixes can pick out exactly the right class of subjects and objects without referring either to objects or to the hierarchy. An agreement process which at first appears quite complex turns out to be a straightforward case of person agreement with subjects.

7. *The Theme Signs -a:- and -am-*

The theme sign *-a:-* (with the phonological variant *-e:-*) is restricted to direct forms of TA verbs. The subject can be first or second person, "PRO," or third person (provided the object is a less prominent third person):

(58) ne-pye:či-ča:na:n-a:-w-aki čo:wi:šwi
1-come-take away-DIR-3-3prox.an.pl. both
"I have come to take both of them away." (FT 50.22)

(59) mi:n-a:-petoke
give-DIR-(PRO)-DUBIT
"Someone must have given it to him." (V 68)

(60) ne:w-e:-w-a ineniw-ahi e:h -wa:pam-a:-ni-č-i
see-DIR-3-3pr.an.sg. man-obv.pl. AOR-look-DIR-obv.-3-IND
neniw-ani e:h -nes-a:-ni-č-i pešekesiw-ani
man-obv.sg. AOR-kill-DIR-obv.-3-IND deer-obv.sg.
"He (prox.) saw the man (obv.) looking at a man (obv.) killing a deer (obv.)." (Bull. 40:831)

In (60) there are three verbs--and all use the theme sign *-a:-*. The first verb (*ne:we:wa* "he (prox.) sees him (obv.)") has as its subject a deleted proximate pronoun. Its object is *ineniwahi* "men (obv.)," which as an obviative noun ranks below the subject. The other two verbs have obviatives as both subject and object. Is it the case that each subject is more prominent than the following object?

Since sentence (60) is an example which Jones cites in his grammar of Fox in isolation from any larger discourse, there is no way of checking on the relative prominence of the nouns in the sentence by considering their importance in some statement or story. This is, however, an important point. The definition of direct and inverse forms on the basis of the hierarchy assumes that the grammar assigns and uses a network of relative prominence of obviative nouns. Yet there is another possibility: choice of direct ot inverse status could be free when both subject and object are obviative. Within the theory of inverse forms as passives, this freedom of choice would be stated by making Passive optional when the subject and the object of a verb are both obviative.

Two kinds of evidence suggest that the choice of direct or inverse status does not involve a free option in cases where obviative acts on obviative. First there is the fact that inverse forms with obviatives as logical subject and object are very rare. If the choice of inverse status for such cases were free, we might still expect to find a preponderence of direct forms, since these are presumably less marked than their obviative counterparts. But inverse forms for obviative acting on obviative are very rare indeed: in his Notes on the Fox Language (1927, p. 208), Bloomfield remarked that he had found only a single example of this kind in the material available to him at that time.

If the inverse were a free option in this situation, we would expect such inverse forms to occur with at least something like the frequency of the corresponding direct forms.

Second, it does appear to be the case that the subject is at least as prominent as the object in obviative-obviative direct forms where there is some check on their relative status. Often there is no reason to rate either as more prominent than the other, but occasionally there is evidence from the surrounding text: the subject, for example, may refer to a noun which has been used in its proximate form more recently than the object. In Bloomfield's one inverse example (which is necessarily quite complex), the object seems clearly to have a more important position in the narrative. The evidence thus appears to support the original formulation of the direct/inverse distinction for cases where obviatives are involved both as subject and as object.

There are a few direct forms in which -a:- does not appear even though an animate third person object is present:

(61) o:ni nekoti mekoh si:pwa:kan-a pi:ti:k
then one EMPH cornstalk-prox.sg. inside
e:h-neman-eč-i
AOR-fix upright-PRO-IND
"Then one cornstalk is fixed upright inside." (P 14.11)

(62) neni:wa-č-i: e:h-wa:pam-a-k-i
man-3-IND AOR-look at-1sg.-3-IND
"When I looked at him, it was a man!"
(AR 40:308.37)

In all cases of this kind, the suffix that appears immediately after the stem (where we would ordinarily expect to find the theme sign -a:-) begins with a vowel. Only before consonants does -a:- appear. This distribution can readily be described by means of a rule deleting -a:- before vowels:

(63) -a:- --- ø / ___ V (where -a:- is the direct theme sign for TA verbs)

If the grammar contains a rule of this kind, there is nothing to bar us from setting up -a:- uniformly in the underlying representations of all TA direct forms with third person objects. That it is correct to do so is confirmed by the fact that -a:- shows up on the surface in the Interrogative forms which correspond to the Indicatives in (61) and (62). The element -w- which is one of the markers of the Interrogative Mode separates the theme sign -a:- from the suffixes of the outer layer of inflection and thereby prevents it from being deleted: neman-a:-t-e:ni "whether someone fixes it (an.) upright" (from ...-a:-w-et-e:ni; see note 3), wa:pam-a:-w-a-k-e:ni "whether I see him."

Now if the inverse sign -ekw- marks the application of Passive, rather than the membership of a verb form in the inverse category, what does the direct sign -a:- mark?

One simple answer is this: -*a:*- is an agreement marker for third person animate objects. If -*a:*- is added to transitive verbs by an object agreement rule, then we have an explanation for the fact that this morpheme indicates properties of the object of a verb in which it occurs. At the same time, we can account for the distribution of this theme sign without having to refer to the hierarchy, simply by ordering the object agreement rule which adds it to verbs after Passive. Direct forms are forms which do not undergo Passive. Therefore they still have objects after Passive has been passed by in the ordering of rules. Inverse forms, on the other hand, will have lost their objects through the application of Passive before the proposed object agreement rule can apply to them.

Those direct forms which have animate objects are marked with -*a:*-. If we extend this idea to cover direct forms with inanimate objects, we can use the same rule to add -*am*- in TI forms:

> (64) *Third Person Object Agreement*: If the object of a verb is third person, add -*a:*- immediately after the stem if the object is animate, -*am*- if the object is inanimate.

If this view of the nature of the direct sign -*a:*- is correct, then its distribution offers evidence for the theory of inverse forms as passives of the second kind that I suggested in the previous section. With respect to Third Person Object Agreement, the objects of inverse forms fail to show behavior which elsewhere is characteristic of objects.

While the same rule can account for the distributions of -a:- and -em-, the use of the two other object-marking theme signs (-i- and -en(e)- cannot be described in this way. Both -i- and -en(e)- can occur in inverse forms, as we saw in section 3. In fact, if the revised hierarchy is correct, -en(e)- can occur only in inverse forms, since no possible subject can rank above the second person. If the theory of inverse forms as passives is right, then -i- and -en(e)- must be added before Passive can apply. After Passive has applied, the objects which these morphemes indicate in inverse forms are no longer objects. We are therefore left with a surprising conclusion: object agreement for first and second persons cannot be accomplished by the rule that carries out object agreement for third persons. While the former process must precede Passive, the latter must follow it.

8. Obviation Marking: -ni-

The use of the obviative suffix -ni- provides the same kind of evidence for the proposed analysis of inverse forms as the personal prefixes. This suffix is one of the most regular features of Fox verbs. It appears in forms of both the Independent Order and the Conjunct Order. (The

Imperative Order only has forms for second person subjects; and this, as we will see, is sufficient to prevent it from making any use of -*ni*-.)

With intransitive verbs -*ni*- appears only when the subject is an obviative third person:

(65) ot-anemo:h-em-wa:w-ahi pye:-ni-w-ahi
3-dog-POSS-3pl.-obv.pl come-obv.-3-3obv.an.pl.
"Their dogs (obv.) come." (Bull. 40:830)

(66) e:h-pya:-č-i e:h-pya:-ni-č-i
AOR-come-3-IND AOR-come-obv.-3-IND
"When he (prox.) came, another (an. obv.) was coming." (Bull. 40:830)

In the first of these examples, the subject is necessarily obviative, since it is a noun with a third person possessor. The verb is inflected in the Indicative Mode of the Independent Order. In the second example, both verbs are in the Conjunct Indicative. Only the second verb uses -*ni*- since the subject of the first verb is proximate.

In transitive verbs, -*ni*- appears sometimes as a subject marker, sometimes as an object marker. In direct forms the obviative suffix shows up when the subject is obviative:

(67) ot-anemo:h-em-ani wa:pam-e:-ni-w-ani
3-dog-POSS-obv.sg. look at-3an.obj.-obv.-3-3obv.a.s.
mahkwe:w-ani
wolf-obv.sg.
"His dog looked at the wolf." (Bull. 40:832)

In an example like this, of course, the object must also be obviative: if the object were proximate the form would be inverse. The suffix -ni- is not used, however, when only the object is obviative. In (68) the subject is proximate, the object is obviative, and -ni- is not used (although the obviation of the object is indicated by means of the suffix -em-). The final -ni of (68) is an obviative singular participal ending which is distinct from -ni-. The obviative marker -ni- which occurs first among the suffixes of the outer layer of inflection is used with both singular and plural obviatives. In (69) the verb anike:hpakisahaw-a:-č-i "he clubs him" has a proximate subject and an obviative object. Again -ni- is not used, and this time the obviation of the object is left unmarked (although it can be deduced from the fact that the subject is proximate and the form is direct).

(68) mi:n-em-a-k-i-ni
give-obv.obj.-1sg.-3-PART-obv.sg.
"he (obv.) to whom I gave it." (V 70)

(69) i:n-ini ka:čisah-a:-ni-č-i-ni
that-obv.sg. push-3an.obj.-obv.-3-PART-obv.sg.
o-šemis-ani meneht anike:hpakisahaw-a:-č-i
3-niece-obv.sg. first club-3an.obj.-3-IND
"Him$_i$ (obv.) who had pushed his$_j$ niece (obv.)
he$_j$ (prox.) clubbed first." (PT 12.19-20)

In inverse forms this behavior of subject and object is reversed. Obviative subjects do not trigger the addition of -ni-. The verbs to watch in the next two examples are wi:h-ketemino:-n-a:kw-e "they (obv.) will bless you (pl.) in (70) (where the inverse sign has been lost, before -en- and -en- has contracted with the stem to give -n-) and e:h-pwa:wi-ne:wo-ko-č-i "he (obv.) does not see him (prox.)" in (71) (where -ko- represents underlying -ekw-). In both cases -ni- is not used, even though the logical subject is obviative.

(70) i:n-i ča:hi we:či-aya:čim-a:-č-i
that-in.sg. EMPH therefor-tell-3an.obj.-3-IND
meso:te:wi manetow-ahi wi:h-ketemino:-n-a:kw-e
all spirit-obv.pl. fut.-bless-2obj.-2pl.-IND
"That truly is why he (prox.) told all the spirits (obv.) to bless you (pl.)." (P 42.31)

(71) e:nwmo:hi-t e:-si:si:kim-a:-č-i
become dog-3 AOR-whimper in fear of-3an.obj.-3-IND
mahkw-ani šewe:n e:h-pwa:wi-ne:wo-ko-č-i
bear-obv.sg. but AOR-fail-see-INV-3-IND
"He$_i$ (prox.) that was changed into a dog whimpered out of fear of the bear$_j$ (obv.), but he$_j$ (obv.) did not see him$_i$ (prox.)." (PT 156.23-158.1)

For a verb with an obviative object to be inverse, it is necessary that the subject also be obviative--and less prominent than the object. As I noted in section 7., such examples require very special discourse conditions and are therefore extremely rare. Any verb of this form is likely to be embedded in a very complex sentence. Bloomfield gives only one case, of which I give a highly elliptical version:

(72) o:n na:hk e:h-ahko:wiki:we:wen-eko-ni-č-i
then also AOR-pull back again-INV-obj.-3-IND
"...and then he (further obv.) pulled him (obv.) back again." (Bloomfield (1927), p. 208)

The existence of this example confirms that -ni- can occur in inverse forms, provided that the object rather than the subject is obviative.

The distribution of -ni- thus follows the same pattern as the personal prefixes: this marker corresponds to obviative subjects in intransitives and in direct forms, but to obviative objects in inverse forms. We can explain this distribution without having recourse to the hierarchy simply by adding another subject agreement rule to our description of the grammar of Fox:

> (73) Obviation Marking: If the subject of a verb is obviative, add -ni- immediately before the suffixes of the outer layer of inflection (that is, just after the stem in intransitives, but following -ekw- or -a:- in transitive forms).

If this rule follows Passive, the subjects that it sees will be the logical subjects of intransitives and direct forms but the logical objects of inverse forms: precisely the class we need.

Besides providing evidence for the existence of a Passive rule in the grammar of Fox, -ni- shows that obviation must be defined for inanimate nouns as well as animates. The reason is that inanimate subjects can trigger Obviation Marking when they are in contexts in which an animate noun would be obviative in form. In (74) an inanimate noun with a third person possessor takes a verb marked with -*ni*-, while in (75) the inanimate subject of the verb meaning "it is night" appears to have been obviated because of the presence of a proximate subject in another clause.

(74) ot-aseni-m-i pye:-mikate-ni-w-i
3-stone-POSS-in.sg. come-inan.-obv.-3-inan.
"His stone comes this way." (Bull. 40:833)

(75) pe:hkote:-ni-k e:h-pye:not-a-k
be night-obv.-3in. AOR-reach-in.obj.-3
o:te:wen-i
town-in.sg.
"When it was night, he (prox.) reached a town." (FT 80.14)

This inanimate obviative is not always used consistently:

(76) pehkote:-k-e (i)-pi k-i:[h]-nakan-eko-na:na
be night-3in.-SUBJ say-PRO 2-fut.-leave-INV-1pl.
"They say he (prox.) will leave us when night comes."
(FT 178.18)

It is not clear whether this apparent inconsistency is due to the failure of Obviation Marking to apply in examples like (76) or whether obviation simply is not assigned consistently to inanimate nouns.

9. Proximate Plural Marking: -*wa:*-

The suffix -*wa:*- follows the same kind of pattern of distribution as -*ni*- and the personal prefixes, although with a few extra wrinkles. In intransitive forms it shows up when the subject meets three requirements: it must be proximate, animate, and plural.

(77) ke-ne:w-a:-w-aki   e:h-o:te:wen-ehke:-wa:-č-i
2-see-3a.o.-3-3pr.a.pl. AOR-town-go-pr.pl.-3-IND
"Did you (sg.) see them (prox.) when they (prox.)
went to town?" (V 72)

In direct forms of transitive verbs, -wa:- appears when the subject is proximate, animate, and plural, but not when the object meets these criteria. Sentence (78) is an example of the first kind. The two examples which follow show first a verb with a first person subject and a proximate, animate, plural object (ne-pye:či-na:na:w-a-k-i "I come to take them away") and then a verb with an unspecified subject and a proximate, animate, plural object (e:h-we:ši:h-eč-i "one paints them"). Only in the first example is -wa:- used.

(78) e:h-wepi-menwi-pemen-am-o-wa:-č-i
AOR-begin-good-take care of-in.obj.-(o)-pr.pl.-3-IND
man-i   mi:šam-i
this-in.sg. pack-in.sg.
"They (prox.) began to take good care of this
pack." (β 66.4)

(79) nahi, ne-pye:či-na:na:w-a-k-i
now   1-come-take away-1sg.-3-IND
wi:h-owi:wi-y-a:n-i   ma:h-aki
fut.-take wife-INTR-1sg.-IND this-prox.pl.
še:skesi:h-aki
maiden-prox.pl.
"Now, I have come to take away these maidens
(prox.) to take (them) as my wives." (FT 54.14-15)

(80) i:n-i   ke:hi   e:h-we:ši:h-eč-i   i:n-iki
that-in.sg. moreover AOR-paint-PRO-IND that-pr.pl.
"That, moreover, is when they paint those (prox.an.)."
(β 14.20-21)

In inverse forms, the situation is once again reversed. The marker -*wa:*- is absent from forms where the logical subject meets all the requirements for the use of this morpheme, but the object does not. This is the case with *wi:h-kehke:nem-en-akw-e* "they (prox.) will know us (inc.)" in the following example:

(81) nahi, iseko meko wi:h-kehke:nem-en-akw-e
now only EMPH fut.-know-2obj.-ipl.inc.-IND
mehtose:neniw-aki we:či-man-iš-awi-y-akw-e
person-prox.pl. therefor-this-thus-do-INTR-1pl.
inc.-IND
"Now it is only so that the people (prox.) will
know us (inc.) that we have done this." (FT 62.18-19)

The marker is used, however, when the object of an inverse form is proximate, animate, and plural, but the subject is not. Both verbs in (82) have subjects with these qualifications:

(82) manetow-an e:ški-ki:ši-mama:čih-eko-wa:-č-i
spirit-obv.sg. first-finish-make move-INV-pr.pl.-3-IND
mehtose:neniw-ak e:h-kano:n-eko-wa:-č-i
person-prox.pl. AOR-address-INV-pr.pl.-3-IND
"The spirit (obv.) who first made the people (prox.)
move (=have life) addressed them (prox.),"
(AR 40:402.4)

The distribution of -*wa:*- can be explained in the same way as that of -*ni*-, but again only if we can take inverse forms to be passives. All that is required is a third subject agreement rule ordered after Passive:

(83) *Proximate Plural Marking*: If the subject of a verb is proximate, animate, and plural, add the suffix -*wa:*- in first position among the suffixes in the case of intransitive verbs, but after -*ekw*- or -*a:*- in transitives.

There are, however, two problems for this rule. The first is not serious. The second is more so. A class of forms exists which have subjects meeting the criteria for Proximate Plural Marking but which lack the suffix -*wa:*-. For example, the participle corresponding to the Conjunct Indicative *pye:ya:-wa:-č-i* "when they come," is formed without -*wa:*-: *pye:ya:-č-iki* "they who come." Bloomfield suggested in his *Notes on the Fox Language* (1927, p. 214) that animate plural participles should be viewed as deriving from the corresponding singular participles. The singular form in this case is *pye:ya:-t-a* "he who comes." Replacing the singular ending -*a* with the plural -*iki* (which causes palatalization of the preceding t) will derive the plural participle as required.

This approach will not, however, explain the corresponding forms of the Interrogative Mode. The Interrogative, unlike the Indicative, adds an ending with -*ki* for proximate plurals even in non-participial forms. The suffix -*wa:*- is omitted in the plural Interrogative form *pya:-k-w-e:hiki* "whether they (prox.) come," even though it cannot be derived from the singular *pya:-k-w-e:ni* "whether he comes" simply by changing a singular ending comparable to the singular participle ending -*a* to -*iki*. The form of the mode marker must be changed as well. The generalization that describes the distribution of -*wa:*- in these cases is this: -*wa:*- is not used where it would be followed by proximate animate plural element -*ki*. If we postulate an underlying -*wa:*- in all those forms which meet the requirements for Proximate Plural Marking, we can account for the absence of the morpheme in forms where -*ki* is used by means of a morphological deletion rule:

(84) -wa:- --> $\emptyset$ / ___ X -ki (where -*wa:*- and -*ki* are proximate, animate, plural markers and X contains no word boundary)

Such a deletion rule has a natural place in the Fox inflectional system, in view of a fact that was noted at the beginning of this paper: although agreement marking is often redundant, no two agreement suffixes mark precisely the same information about any subject or object. If -*wa:*- were not omitted before -*ki*, both morphemes would indicate that the same noun was proximate, animate, and plural.

The fact that -*wa:*- and -*ki* never co-occur within a word has one other interesting consequence: it is impossible to tell whether -*wa:*- is present in the underlying forms of verbs inflected in the Independent order. As we will see in the next section, Independent forms in which a proximate, animate, plural is involved as either subject or object end in -*ki*. It seems reasonable to assume that -*wa:*- is underlyingly present in Interrogative forms in -*ki*, since the Interrogative Mode is for the most part similar to the rest of the Conjunct Order in the agreement markers that it uses. The agreement system of the Independent Order, on the other hand, diverges sufficiently often from the Conjunct system that it is possible that Proximate Plural Marking should be restricted to the Conjunct Order, much as the use of personal prefixes is restricted to the Independent Order.

A second problem for Proximate Plural Marking offers more difficulty. This is the fact that one class of verb forms within the inverse category use -*wa:*- to indicate that the logical subject is proximate, animate, and plural. The forms involved are those for action by third person subject on first person object:

(85) ma:h-aki koč i:ni wi:h-asemih-i-wa:-č-i
this-pr.pl. EMPH now fut.-helplive-1obj.-pr;pl.-3-IND
ne-ni:ča:nes-aki
1-child-pr.pl.
"For now these children of mine will help me
get a living." (AR 40:336.12)

I have no explanation for this apparent anomaly in the use of -*wa:*-. The claim embodied in the rule of Proximate Plural Marking is that the appearance of -*wa:*- in examples like (85) is simply irregular: this morpheme must be set up among the suffixes of verbs like *wi:h-asemih-i-wa:-č-i* "they (prox.) help me get a living" by some means other than a syntactic agreement rule.

10. Other Agreement Markers

The discussion up to this point has been concerned almost exclusively with the personal prefixes, the five theme signs, and two suffixes from the outer layer of inflection, -ni- and -wa:-. Many other agreement markers have appeared in the examples I have cited, and there are a number of agreement suffixes that have not appeared. Many of these suffixes appear to be quite irregular in their distribution, and a full discussion of their properties is well beyond the scope of this paper. It may be appropriate, however, to include a few remarks about them here.

Apart from the obviative suffix -ni- and the proximate, animate, plural marker -wa:-, the agreement morphemes of the outer layer may usefully be divided into two groups: third person markers, and markers for the first and second persons. Each of the orders must be considered separately, since each order has its own system. The Imperative Order has only a few forms, but since there is not much to say about them apart from listing the morphemes of which they are composed, I will have little to say about them here. I will also ignore the endings of the participles of the Conjunct Order.

In section 1. I listed the endings that are used in the inflection of nouns for gender, number, and obviation. These endings appear as agreement suffixes on verbs inflected in the Independent Order. An example is the ending -*aki* which is used to mark animate nouns as proximate and plural: *neniw-aki* "men (prox.)." This suffix is used with intransitive verbs in the Independent Order to indicate a proximate, animate, plural third person subject:

(86) kekimesi meko pye:-w-aki
truly EMPH come-3-3prox.an.pl.
"Truly they came." (FT 23,14)

In transitive forms -*aki* can be used to mark either a subject or an object, but the distribution of this suffix does not follow a pattern that depends on the hierarchy, as -*ni*- and -*wa:*- do. The ending -*aki* is usually present whenever either the subject or the object is proximate, animate, and plural. Thus -*aki* appears as a marker of the logical object of a direct form in (87) and as a marker of the logical subject of an inverse form in (88).

(87) net-en-a:-w-aki
1-call-3an.obj.-3-3prox.an.pl.
"I call them (prox.)." (Bull. 40:818)

(88) ne-ta:nese-na:n-aki k-i:h-ašam-ako:-ki
1-daughter-1pl.-prox.pl. ...-ekw-w-aki
2-fut.-feed-INV-3-3pr.an.pl.
"Our daughters will feed you (sg.)." (FT 198.10-11)

There are exceptions to this rule, however. The ending is absent when -*pena* is used to mark the first person plural, as in (89), and it is not clear where the a of -*aki* occurs in the underlying representations of forms of the Dubitative Mode like that in (90), if in fact it occurs at all.

(89) i:ni meko ke-ki:ši-ma:winan-a:-pena
now EMPH 2-finish-attack-3an.obj.-1pl.
"Now we have finished attacking them (prox.)."
(FT 22,8)

(90) ...kiš-eso:-toke:h-iki ne-ši:ši:p-em-aki
finish-cook-DUBIT-3pr.an.pl.1-duck-POSS-pr.pl.
"My ducks must have finished cookong." (FT 286,10)

The proximate animate singular suffix -a has a distribution that is similar to that of -aki, as does the morpheme -w- which serves as a general marker of the third person. The obviative animate singular ending -ani and the corresponding plural marker -ahi are used somewhat differently. The only examples of which I know where they appear involve third persons as both subject and object. In these cases they are distributed according to the hierarchy: they mark the more prominent third person subject or object. The inanimate singular -i and plural -ani appear to be confined to intransitives: pye:-mikat-w-i "it comes," but ne-wa:pat-a (in which -w- too is missing and the theme sign -am- appears as -a). The indefinite subject is marked by means of a suffix -pi, as in ne:w-a:-pi "someone sees him."

The first and second person suffixes from the outer inflectional layer are used just as idiosyncratically as the third person suffixes. Only the plurals are marked. The ending -pena appears whrn the logical subject is first person plural (inclusive or exclusive), while -*pwa* marks the logical subject as second person plural.

(91) k-i:[h]-ma:wi-wa:pat-a:-pena
2-fut.-go-look at-3in.obj.-1pl
"We (inc.) will go and look at it." (Bull. 40:818)

(92) ...k-i:-sahkah-amaw-a:-pwa
2-fut.-burn tobacco-BENEF-3an.obj.-2pl.
"you (pl.) will burn tobacco for them (prox.)."
(FT 180,14)

The logical object is marked in forms where the logical subject is third person by means of the suffixes -*na:n*- 1pl. and -*wa:w*- 2pl.

(93) ...ket-eši-wen-eko-na:n-a
2-thither-lead-INV-1pl.-3pr.an.sg.
"he is leading us (inc.) thither." (FT 72,4)

(94) ahk-i k-i:h-mi:n-eko-wa:w-a
land-in.sg. 2-fut.-give-INV-2pl.-3pr.an.sg.
k-o:s-wa:w-a Me:ta:so:pit-a
2-father-2pl.-pr.sg. government-an.sg.
"Your (pl.) father the government will give you (pl.) land." (FT 32,13-14)

Where the subject is first or second person, however, -*pena* and -*pwa* are used as object markers:

(95) k-i:h-wa:wa:pam-i-pena ča:hi
2-fut.-look at (redup.)-1obj.-1pl. EMPH
"You (sg.) will examine us.(exc.)." (FT 290,23)

(96) ke-wi:temo:-ne-pwa koči yo:we
2-tell-2obj.-2pl. EMPH before
"I told you (pl.) before." (FT 304,16)

In forms involving both a first plural and a second plural, the first plural is marked in preference to the second plural: *ke-wa:pam-i-pena* "you (sg. or pl.) see us (exc.)," *ke-wa:pam-ene-pena* "we (exc.) see you (sg. or pl.)." The Imperative Order procedes on the same principle, although different suffixes are involved: *wa:pam-i-ko* "you (pl.) look at me!" uses the 2pl. ending *-ko* seen in *pya:-ko* "you (pl.) come!", but *wa:pam-i-na:ke* "you (sg. or pl.) look at us (exc.)!" uses a suffix *-na:ke* which is confined to Imperative forms for action on first plural objects. This preference for first person over second runs counter to the hierarchy, but it is consistent with the system for distinguishing between inclusive and exclusive first person plurals which was discussed in section 5.

The two principal third person endings of the Conjunct Order are *-k* for inanimates and *-t* for animates: *pehkote:-k-i* "when night comes (Subjunctive Mode)," but *pye:ya:-t-a* "he (prox.) who comes (Conjunct Participle)." The animate *-t* appears as *-k* when it follows another consonant and as *-č-* when it precedes i or y: *e:h-wa:pam-eh-k-i* "when he sees you (sg.)" (with *-k* for *-t* following the n of underlying *-en-*, the second person object marker[11]), but *e:h-pya:-ni-č-i* "when he (obv.) comes" (with *-č-* for underlying *-t* before the Indicative Mode marker *-i*). In a few forms, *-k* appears irregularly for *-t*. Thus the form for "I see him" is *wa:pam-a-ki* in which *-a-* is apparently an irregular form of the first person singular marker *-a:n*. If the underlying final n of the 1sg. morpheme is held responsible for the use of *-k* for *-t*, then the corresponding form for second person singular subject must be considered irregular: the 2sg. morpheme is usually *-an*, but "you (sg.) see him is *wa:pam-a-č-i*. The suffixes used in Conjunct forms to indicate an unspecified subject are similar to those used for third persons, but their distribution is irregular: *-k*, *-ek*, *-et*, and *-wet* appear in various forms. The only remaining third person suffix is an obviative object marker *-em-* which is restricted to direct forms with "PRO" or first or second person subjects. (For examples, compare sentences (68) and (69).)

The distribution of the animate third person *-t*/*-k* is much like that of the third person *-w-* or the proximate, animate, plural *-aki* of the Independent Order: either *-t* or *-k* is usually present when either the subject or the object of a verb is third person and animate. There are exceptions, however, such as the forms for action by third person on second person plural: *e:N-ašihto:-n-a:kw-e* "he built them for you (pl.)." The inanimate *-k* appears only in intransitive forms and direct forms of transitives.

The suffixes used to mark the first two persons in Conjunct forms show even more irregularity than the third person morphemes. Intransitive verbs use the subject markers -a:n 1sg., -an 2sg., -a:k 1pl.exc., -akw 1pl.inc., and -e:kw 2pl.: pya:-y-a:n-i."I come," pya:-y-an-i "you (sg.) come," etc. In transitive verbs these endings can also serve as subject amrkers, but some of them appear as object markers as well. Thus -an marks a second person singular subject in (97), but in (98) -a:k indicates a first person plural exclusive object:

(97) mehteno:h ča:[h] neš-i-y-an-e, i:ni
only EMPH kill-1obj.-(y)-2sg.-SUBJ then
wi:h-a:wan-a-č-i ne-ni:ča:nes-aki
fut.-carry away-2sg.-3-IND 1-daughter-pr.pl.
"Only if you kill me will you carry away my daughters." (FT 54,21)

(98) ne:w-i-hk-a:k-ehe
see-1obj.-POT-1pl.-POT
"You (sg. or pl.) would see us (exc.)." (V 69)

In some forms, these markers are irregularly replaced by other morphemes. In (99) a suffix -ame- is used in place of -a:k to indicate a first plural exclusive object. This morpheme -ame- appears in no forms other than those for action by third person (singular or plural) an first person plural exclusive.

(99) mi:š-i-y-ame-sa
give-1obj.-(y)-1pl.exc-POT
"He/they would give it to us (exc.)." (V 69)

A number of other irregularities of the same kind could be cited.

What are we to make of this irregular system of agreement marking? It is possible that some of the apparent idiosyncrasies of particular morphemes among the suffixes of the outer layer of inflection could be explained on the basis of a careful analysis of the phonology of the verbal suffix system. Yet much that is simply irregular is bound to remain.

The idea that inverse forms are passives has some interesting consequences for the agreement markers of the outer layer of inflection. Apart from -ni- and -wa:-, it appears that all of these suffixes either can or must be added before the application of Passive. Thus the Independent endings -na:n- 1pl. and -wa:w- 2pl. occur only as object markers in a class of inverse forms. If these suffixes are added after Passive, they will have to be added by some kind of subject agreement rule, since after Passive the objects which they mark have become subjects. At this point in derivations, there is nothing to distinguish these derived subjects from the subjects of direct forms—except the fact that they were formerly objects. Any rule that will pick out as its triggers just a class of subjects which were created by Passive will have to repeat at least some of the criteria for the application of Passive. But if this is the case, then it would presumably be simpler to order the rule that adds -na:n- and -wa:w- to inverse forms before Passive has a chance disrupt the underlying system of grammatical relations.

Essentially the same argument applies to many of the other agreement markers as well. Thus the first person plural exclusive suffix -*ame*- of the Conjunct Order occurs only as a marker of the logical objects of a class of inverse forms, those with third person subjects. While the second person plural morpheme -*pwa* of the Independent Order is used as a subject marker in direct forms (where it could be added just as easily before or after Passive), it also shows up as an object marker in some forms which I have held to be inverse: those with first person singular subjects. If these occurrences of -*pwa* are added by a syntactic agreement rule after Passive has applied, it is difficult to see why -*pwa* is not used to mark all second plural objects of inverse forms.

The third person suffix -*w*- and the proximate, animate, plural marker -*aki* can appear in Independent forms when either the subject or the object fulfills the requirements for their use. The cases in which one of these elements marks the object of an inverse form can be handled by means of a rule which follows Passive, but such a rule will have to be triggered by nouns which are neither subject or object if subjects which have been deposed by Passive can serve as triggers. Again the only way to pick out the proper class of triggers would essentially involve undoing the work of Passive.

The obviative singular suffix -ani and the obviative plural -ahi work differently. As I noted above,(p. 63), their distribution follows the hierarchy, at least where third persons are used as both subject and object. Thus -ani marks the subject of a direct form in (100) but not object of a direct form in (101) or the subject of an inverse form in (102). I have no examples of -ani as the marker of an obviative object in an inverse form, but Ives Goddard gives the ending -ekoniwani for this class of forms in his Fox paradigms (1975). This would give us the form wa:pam-eko-ni-w-ani "he/they (further obv.) see(s) him (obv.).

(100) ot-anemo:h-em-ani wa:pam-e:-ni-w-ani
3-dog-POSS-obv.sg. look at-3a.obj.-3-3pr.a.sg.
mahkwe:w-ani
wolf-obv.sg.
"His dog (obv.) looked at the wolf (further obv.)"
(Bull. 40:832)

(101) wa:pam-e:-w-a
look at-3an.obj.-3-3pr.an.sg.
"He (prox.) looked at him (obv.)." (Bull. 40:809)

(102) wa:pam-ekw-a neniw-ani
look at-INV-3pr.a.s. man-obv.sg.
"The man (obv.) looks at him (prox.)." (Bull. 40:847)

The distribution of -ahi is the same. Both also appear as subject markers in intransitive verbs. This is exactly the kind of pattern that we found with -ni- and -wa:-. Is it possible that -ani and -ahi are added to verbs by a subject agreement rule that follows Passive?

Since -*ani* and -*ahi* are on a par with their proximate counterparts -*a* and -*aki* in the nominal inflection system, it would be surprising if only the obviative suffixes were added by a post-Passive agreement rule. It is possible, however, that one subset of the occurrences of -*a* and -*aki* are added by a subject agreement process after Passive while the other occurrences are not. The fact that all the irregularities in the distribution of -*a* and -*aki* apparently occur where these morphemes mark objects of direct forms is consistent with this hypothesis, since these objects will never be subjects if the proposed account of Passive is correct. The real test of these speculations would be a set of examples in which first or second person subjects act on obviative objects or in which obviative subjects act on first or second person objects. These obviatives would not be subjects after Passive. Therefore if -*ani* and -*ahi* are added by subject agreement after Passive, they should not occur in such cases. If -*a* and -*aki* do occur in such forms, then not all occurrences of these morphemes can be true proximate markers.

Unfortunately I have no examples of this kind, but Ives Goddard has informed me (personal communication) that Fox verbs are not marked for the obviation of nouns with third person possessors when the subject is first or second person. This class of cases, at least, appears to offer support for a subject agreement rule that works after Passive to add the endings -ani and -ahi and some, but not all, occurrences of -a and -aki. Clearly, however, this problem will require further investigation before the question of the existence of such a rule can be definitely answered. Since the third person marker -w- shares many of the distributional properties of -a and -aki, a better understanding of the proximate endings will probably shed some light on its use as well.

If we set aside the debatable case just discussed, the following generalisation appears to hold: all those agreement markers whose distribution is irregular either can be or must be added before the application of Passive, while all agreement markers which are added after Passive has applied have regular distributions (at least in underlying forms). If the agreement processes which precede Passive in fact precede all other syntactic rules of Fox, it may be reasonable to propose that they are effected by lexical processes rather than syntactic rules. Chomsky has argued in "Remarks on Nominalisation" (1972) that idiosyncrasy is a hallmark of lexical rules, that is, rules which state the kinds of syntactic frames into which lexical items can be inserted rather than transforming already formed syntactic structures into other syntactic structures. The implication can only be one way at best (from irregularity to lexical status for the rule which describes it), and it is not known how strong a claim of this kind can be empirically maintained. It seems to me, however, that the idea that the agreement processes which precede Passive are carried out by lexical rules may be worth pursuing.

A theory of this kind must make strong predictions about three other processes in the grammar of Fox. Reflexive and reciprocal forms corresponding to TA stems are inflected as intransitives. If these forms are derived by syntactic reflexive and reciprocal rules, then those agreement processes which mark verbs for properties of their logical objects cannot be described by lexical rules. If these object agreements were lexical, then reflexives and reciprocals would receive this object marking before the rules which make them into intransitive forms apply. I do not at present know of any evidence to decide between the theory that Fox reflexives and reciprocals are syntactically derived and the theory that these processes should also be consigned to the lexicon. There are cases of reflexive or reciprocal forms which appear to have drifteded away from their original meaning: *mi[illegible]ti:waki*, for example, can mean simply "they fight" as well as "they fight each other"; and *ki:howi:weti:pena* means "you and I will be man and wife," not "you and I will have each other as wife." There is no reason why the regular cases could not be derived by syntactic rules, however, even if a few of the odder examples had lexical derivations.

The situation with respect to verbs with logical indirect or benefactive objects is much the same. In all such cases it is the indirect or benefactive object which is indexed on the verb; the logical direct object does not count for purposes of inflection. Thus corresponding to the TI verb sahkah-am-w-a "he burns it" is the verb of the following sentence:

(103) ase:ma:w-a   man-a   ke-sahkah-amo:-ne
tobacco-pr.sg. this-pr.sg. 2-burn-BENEF-2obj.
"This tobacco I burn for you (sg.)." (PT 380,1)

If the pre-Passive agreements are held to be lexical, then verb forms like that in (103) must also be lexically derived, since the benefactive object counts for object agreement. Since the agreement involved in this case is that recorded in the theme sign -ene-, it is interesting to note that this morpheme is no exception to the rule that agreement markers added before Passive are irregular in their distribution: the apparently unmotivated differences in the use of the Independent -ene- and the Conjunct -en- are a case of just this kind of idiosyncrasy. If this fact is used to argue that the addition of -en(e)- is accomplished by a lexical rule, however, then it must be possible to consider the rule which derives benefactive forms like that in (103) to be lexical as well.

It is interesting to note, in this connection, that a benefactive verb like *sahkahamaw-* can be used with an animate logical object (in this case *as:ma:wa* "tobacco") even though it is derived from a TI stem which could not take such an object outside the benefactive construction. In the absence of a theory of the way in which gender is reflected in the choice of finals,(the stem-final morphemes which determine gender selection), it is not clear what should be made of this fact. There are simply too many points that remain obscure for the question of possible lexical agreements to be settled now.

What about Passive itself? Is it possible that this rule itself could be stated as a rule determining the frames into which a verb can be inserted, rather than a rule which transforms syntactic structures which already contain lexical items? An approach of this kind would not, perhaps, be far from that which is incorporated into Bloomfield's analysis of the inverse theme sign: this marker would be seen, in a theory of this kind, as performing a function much like that of finals, if these are viewed as determining the kinds of subjects or objects which a verb can take. It seems to me that a lexicalist appraoch to Passive in Fox would run into all the difficulties which were discussed before in connection with possible attempts to state some of the irregular agreements in terms of the structrues produced by Passive. If we sought to acoid these problems by setting up a system of ordered lexical rules, the resulting theory would risk being nothing but a cumbersome notational variant of a theory in which Passive is a true syntactic rule. If the rule of -*ekw*- Deletion proposed in section 4. is the right way to handle the apparent irregularities in the distribution of the inverse sign, then this morpheme does have the kind of regular distribution in underlying forms which is appropriately described by a transformational rule.

11. *Inanimate Subject Forms*

The inanimate subject forms of TA verbs offer a special kind of puzzle: it is not clear whether they are more properly analyzed as transitives or as intransitives. Consider, for example, the verb of the following sentence:

(104) ot-asení-m-i mešo-kwi-ni-w-ani
3-stone-POSS-in.sg. hit-7-obv.-3-3obv.an.sg.
neniw-ani ...
man-obv,sg,
"His stone hit the man (obv.)." (Bull. 40:833)

The stem is *mešw*-; the o of *mešo*- represents a contraction of the final w of the stem with the e of underlying -*ekwi*-. But does this suffix represent a sequence of the inverse sign -*ekw*- and an inanimate marker -*i*-, or should it be taken as a single unit? The i of -*ekwi*- cannot be the same element as the inanimate subject marker -i that shows up in pye:-mikat-w-i "it comes." First of all, it occurs in the wrong position: before the third person -w- rather than after it. The -i- of pye:-mikat-w-i is a suffix used only in the Independent Order, but -ekwi- appears in Conjunct forms as well:

(105) se:kih-ekwi-w-an-e:ni
frighten-?-INTER-2sg.-INTER
"It must have frightened you (sg.)." (V 70)

These Conjunct forms are anomalous in several ways. The theme signs -i- and -en- are not used. Instead we find -ekwi- with first and second person logical objects, an environment in which -ekw- is not used in the Conjunct Order. The endings -a:n 1sg., -an 2sg., and so forth appear as object markers, although they are usually subject markers:

(106) ka:ta na:kaš-i-hk-an-i
NEG follow-1obj.-PROHIB-2sg.-PROHIB
"Don't you (sg.) follow me." (V 72)

If we suppose that -ekwi- is actually a final which can be added to TA stems to give intransitive forms, then the anomalies of the "inanimate subject" forms could perhaps be explained. The derived AI stems would take as their subjects the logical objects of the corresponding TA stems, but would add the notion of action by an inanimate subject--without the syntax of such subjects. There would then be no problem in explaining the absence of the theme signs -*i*- ans -*en*- from these forms: there would be no syntactic first or second person objects for them to mark. The apparent occurrence of the inverse sign where it does not usually occur would also be accounted for: -*ekwi*- would not actually include an occurrence of -*ekw*-.

If the analysis of the distribution of -*ekw*- in terms of -*ekw*- Deletion is correct, these last two arguments are not actually independent: the emergence of -*ekw*- on the surface in inverse forms is predicted ~~where~~ where -*i*- and -*en(e)*- are not used. Since these object-marking theme signs do not in any case have a regular distribution, another class of cases where they are not used cannot be considered too surprising. The use of -*am* as an object marker is unusual, but the markers-- -*akw* 1pl.inc. and -*a:k* 1pl.exc., which belong to the same series of morphemes, appear outside the class of inanimate subject forms as both subject and object markers.

In inanimate subject forms -*ekw*- does not appear except in combination with -*i*-. There is some evidence, however, that -*i*- can occur without -*ekw*-. Thus "he (obv.) sees it" in the Independent Indicative Mode is *wa:pat-am-i-ni-w-ani*. The corresponding Conjunct Indicative form is *wa:pat-am-i-ni-č-i*. It does not appear to be possible to take these occurrences of -*i*-

to be epenthetic, since -*i*- does not always occur in this environment: *e:h-ko:hkak-a-ni-k-i* "it (obv.) tipped over," shows -*a*- for -*am*- before -*ni*- in a verb which is inflected with -*am*- as if it had an inanimate object, although this verb is never actually found with such an object (Bloomfield (1927), p. 210). This appears to be an example of the same phonological process that changes -*am*- to -*a*- before the third person -*k* (p. 16). In the absence of examples of -*aniki* in true transitives, however, this evidence for the independence of the -*ekw*- and -*i*- of -*ekwi*- can hardly be considered conclusive. There are simply too many irregularities in the inflection of inanimate subject forms for it to be possible to decide on their status as transitive or intransitive forms on the basis of their morphology alone.

12. Conclusion

The core of the theory of the Fox verb agreement system that I have presented in this paper is the analysis of the theme signs. The use of these five morphemes involves a ranking of subjects and objects on the basis of their person, gender, and obviation. The theme signs -*a:*- and -*am*- are used only in direct forms: those whose subjects rank above their objects on the hierarchy. The first marks animate third person objects, the second inanimate third person objects. The theme sign -ekw- marks forms as inverse: the subject ranks below the object. The theme signs -i- and -en(e)- are used in the Independent Order only when both subject and object are first or second person. Their behavior in Conjunct forms suggests, however, that they should be considered markers of the object alone: -en(e)- indicates an object which includes the second person, -i- indicates an object which includes the first person but not the second. These two object markers appear in Conjunct forms for combinations of subject and object which are marked as inverse in forms of the Independent Order. For this reason, I have suggested that -ekw- is underlyingly present in all inverse forms, including now forms for action by first person on second. When -ekw- occurs in the same word as -i- or -en(e)-, it must be deleted by a morphological deletion rule.

The inverse marker is the only theme sign which provides no information about the subject or object. I have therefore proposed not to analyze it as an agreement marker at all. Instead, I have suggested that -ekw- ahould be viewed as a Passive voice marker. All inverse forms, in this analysis, are derived by the application of Passive: their underlying objects are their derived subjects.

Four agreement processes appear to depend upon the Hierarchy. If, however, we assume that inverse forms are passives, then only Passive must be constrained to work according to the hierarchy. The four agreement processes can be expressed as relatively straightforward subject and object agreement rules. Only one is an object agreement rule: the rule which adds -a:- and -am- in direct forms. Three others are subject agreements: Subject Person Marking adds personal prefixes in modes of the Independent Order, Obviative Marking adds -ni- in both Independent and Conjunct forms, and Proximate Plural Marking adds -wa:- to Conjunct forms.

With the possible exception of the obviative singular and plural suffixes -ami and -ahi and some occurrences of the proximate singular and plural suffixes -a and -aki, it appears that all other agreement markers either can be or must be added before Passive. Passive can thus be seen as dividing the verb agreement processes of Fox into two classes: those which must be ordered before Passive and those which must be ordered after Passive. All those rules which demonstrably must follow Passive are regular, while many if not all of the rules which precede Passive are irregular in their application. Since the theme signs -i- and -en(e)- must be added before the application of Passive, it is appropriate that the distribution of -en(e)- appears to be irregular.

FOOTNOTES

1. I have tried to use examples which actually occur in available Fox texts as much as possible. For a key to the abbreviations used in citations, see the bibliography. Where examples that I have needed were not available, I have made the forms from regular roots according to the paradigms given in Goddard (1975).

2. Strictly speaking, the analysis given in this section is not Bloomfield's. Rather it is my attempt to reconstruct a rationale for the system of categories that he uses and to give an account of the implications of this system for problems of verb agreement.

3. When a vowel is followed by a w and another vowel, the sequence is replaced by a single long vowel, provided that a morpheme boundary intervenes between the w and the second vowel: when the stem wi:tamaw- "tell it to" is followed by -ekw-, for example, -aw+e- becomes -a:-. Thus we find k-i:h-wa:tamaw-a:wa "you (sg.) will tell it to him," but e:h-ki:ši-wi:tamae-koči "he (obv.) has told it to him (prox.)." (Bloomfield (1925), p. 227).

4. The stem an- "tell" has the curious property of deleting before the theme sign -ene-.

5. It is not certain that the a which I have here assigned to the Potential mode marker -ak- should actually be analyzed in this way. This a may be part of the theme sign -en- in Potentail forms. This was Bloomfield's view (1927, p. 203). If the form of the theme sign is -ena- in this mode, this fect is further evidence of the irregular properties of this marker.

6. The -w- given in this form is conjectural. If it does appear in underlying forms, it must be deleted where it follows -ekw-. Surface -e:- is produced by contraction of -w-a-: cf. mi:n+ekw-a "he (obv.) gives

it to him (prox.)."

7. Future forms are often used as mild commands.

8. The stem is *keteminaw-* "take pity upon; bless." For the change of -*aw-e*- to -*a:*-, see note 3.

9. The stem *mi:n-* "give" ends in what is known as a "changeable n." Changeable n in Fox gives š before i and h before ~~k~~: the root *en-* "thus, thither" appears as *in-* (with regular change of initial e to i) in *in-ahkamikesiwa* "he carries on so," as *eš-* in *ket-eš-iwenekona:na* "he leads us (inc.) thither," and as *ih-* (again with initial e as i) in *ih-pahowa* "he runs thither." (See Bloomfield (1946), p. 91.)

10. It is conceivable that the effect of a condition on the applicability of Passive could be obtained by means of some sort of interpretive strategy acting at the surface. Suppose, for example, that such a strategy considers possible subjects for a verb in the order of their rank in the hierarchy. If the form is direct and Passive has not applied, the strategy will choose a surface subject correctly. If Passive has applied, the highest ranking noun will be chosen incorrectly as the surface subject and the form will receive the wrong interpretation. The situation would simply be reversed for inverse forms.

11. The n of the theme sign -*en*- is a "changeable n" (see note 9). The reason for the peculiar behavior of this segment is that it is derived historically from a Proto-Algonquian *θ.

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AVOIDING AMBIGUITY IN GERMAN DOUBLE ACCUSATIVES*

Eve Sweetser
Harvard University

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0. Introduction

This paper is concerned with the role of definiteness and indefiniteness of NP's in the application of German extraction rules, and, in particular, with how a specific German structure which is a possible source of ambiguity is kept from giving rise to ambiguous sentences.

In German, when clauses with transitive verbs are embedded under lassen, hören, or sehen, the resulting sentence contains a double accusative structure: the deep subject and deep object of the lower clause are both put in the accusative case, preceding the lower verbs:

(1) Ich habe den Freund den Wein holen lassen.
(acc.) (acc.)(Sentence from Reis, 1973)
(I had my friend get the wine.)

The first accusative NP is the old subject, the second is the old direct object; this order is fixed, despite the fact that German can usually reverse the order of subject and object by scrambling.

These facts raise an interesting question: in a case where word order information is necessary to indicate the syntactic function of an NP (as here, where case marking no longer differentiates between subject and object), how will extraction rules be able to operate on the NP's involved? First, if a rule extracts an accusative NP from its position in sentence (1), will the syntactic information lost by the loss of word order be supplied by the semantic information: semantically, a friend can bring wine, but not vice versa, so it's possible to tell subject from object. Secondly, extraction could sometimes create semantic ambiguity if it could apply unrestricted. For example, sentence (2):

(2) Ich liess meinen Bruder meinen Freund anrufen.
(I had my brother call my friend.)

Here, semantically either NP could be either subject or object. If one is extracted, how will the speaker be able to reconstruct the syntactic information which word order no longer gives him?

In fact, extraction rules don't apply indiscriminately to NP's in the double accusative construction; as I shall demonstrate, there is a pattern which permits the recovery of the deep syntactic structure. What I shall propose is that extraction rules with definite targets may only apply to old (deep) subjects in double accusative constructions, while extraction rules with indefinite targets may only apply to old objects.[1]

I shall therefore first demonstrate how rules apply into the double accusative construction, and precisely state my hypothesized restriction on extractions from the construction. Then I shall establish tests for the definiteness or indefiniteness of given NP's, by examining general restrictions or definiteness in German; these tests were suggested in large measure by Jerry Morgan's (1972) discussion of similar English facts.

Finally, this paper is relevant to the study of universal grammar. Universal correlations between definiteness and subjecthood and between indefiniteness and objecthood appear to be utilized by the German language to form the constraint I shall discuss, and in any case, how languages in general avoid creating ambiguity when double NP's arise, is an interesting question. I shall attempt to make some crosslinguistic predictions about how definiteness and subjecthood will affect ambiguity - avoidance in the application of extraction rules to such structures.

I. The double accusative and extraction from it.

IA. The double accusative construction.

Although in matrix clauses German has SVO word order, there are several ways that two (or three) major constituent NP's may occur directly adjacent to each other in a surface sentence. One is of course the presence of an indirect object following the direct object. Another way is by scrambling: almost any single constituent of a German sentence may be preposed to replace the subject in preverbal position. The subject then follows the verb, by the usual German verb-second rule:

(3) Ich habe gestern meine Schwester gesehen.
(I saw my sister yesterday)
(Ordinary German WO)

(4) Meine Schwester habe ich gestern gesehen.
(Talking of my sister, I saw her yesterday.)
(DO preposed.)

(5) Gestern habe ich meine Schwester gesehen.
(Speaking of yesterday, I saw my sister then.)

Another way in which major-constituent NP's may become adjacent in German is through the verb-final rule which applies to all dependent clauses except tensed uncomplementized ones:

(6) Ich sagte ihm, ich habe meine Schwester gesehen.
(I told him I saw my sister.)

(7) Ich sagte ihm, dass ich meine Schwester gesehen habe.
(I told him that I saw my sister.)

When major constituent NP's occur adjacent to each other, the favored word order is S O IO (or Nom Acc Dat, or I II III). But this favored word order is overridden by another principle, that of order by increasing informational weight. Pronouns must precede nouns, and definite NP's precede indefinite ones:

(8) Morgen gibt Herr Behrens die Uhr seiner Frau.
(Nom) (Acc) (Dat)
(Tomorrow Mr. Behrens is giving his wife the watch.)

(9) Morgen gibt er es ihr.
(N) (A) (D) (all pronouns)
(Tomorrow he's giving it to her.)

(10) Morgen gibt ihr die Uhr ein Herr.
(D/pro) (A/def) (N/indef)
(Tomorrow a man will give her a watch.)

Emphasis can change the S O IO word order if the NP's being switched are of equal informational weight; but it cannot easily interfere with the informational weight principle.

(11) Morgen gibt ihr ein Herr die Uhr. (not perfect, even with contrastive stress on Uhr.)

However, there are constructions in German which show seeming violations of the informational weight principle. When the higher verb in a German complex sentence is lassen, hören, or sehen, the resulting sentences may contain a double accusative (as mentioned in the introduction) if the lower clause is transitive:

(12) Ich habe den Freund den Wein holen lassen.
(Acc) (Acc)
(Sentence from Reis) (1973)
(I had my friend get the wine.)

The first accusative NP is the subject of the old lower clause, and the second is the direct object. This sentence may also be expressed as:

(13) Ich habe den Wein von dem Freund holen lassen.
(Acc) (Dat) (Sentence by Reis)
(I had the wine brought by my friend.)

These constructions superficially resemble English subject-object raising sentences, and have traditionally been analyzed as SOR sentences; but Marga Reis (1973) argues cogently for an S-pruning analysis.[2] A clause-union analysis might well be defensible on the same grounds, but in any case she gives clear evidence that the final surface sentences are all on one clause-level, although there were clearly two clause levels in the deep structure of such a sentence. The only other verb I know of that takes a double accusative in German is lehren, "teach," which is not relevant to this paper since the problem I shall be dealing with only exists if both accusative NP's refer to people, and lehren does not take two complements representing people. *Hören* and *sehen* appear to behave like *lassen*, but *hören* only takes double accusatives with 2 animates with a very few complement verbs, and not all of these sentences are very good. I shall give *sehen* examples where relevant.

I.B. Restrictions on movement and deletion from double accusatives.

The double accusative has a fixed word order of SO (deep S and O of the embedded clause), regardless of informational weight:

(14) *Ich habe den Wein den Freund holen lassen.
(A/def) (A/def.)

(15) *Ich habe den Wein einen Freund holen lassen.
(A/def.) (A/indef.)

It appears that this fixed order serves to preserve recoverability of the grammatical relations. Now, how are movement and deletion rules going to apply without erasing the structural information encoded in this ordering?

I.B.1.) Non-semantically-ambiguous double NP's: clausebounded rules are restricted.

First, let us examine sentences which could not become ambiguous semantically through extraction: i.e., sentences like (1). There is a preposing rule in German which can move almost any single constituent into pre-verbal position. It is not an extraction rule, but nonetheless does have bearing on the structures I am going to discuss. It cannot prepose specific indefinite NP's, but any other kind is O.K.:

(16) Meinen Freund habe ich (nicht) angerufen.
(I have(n't) called my friend.)

(17) *Einen Freund habe ich (nicht) angerufen.
(I have(n't) called a friend.)

(18) Elephanten kann ich nicht reiten.
(I can't ride elephants (generic).)

(19) is good:

(19) Bier habe ich nicht getrunken.
(I haven't drunk beer.)

Bier is not generic, but it is a general term, hence not specific.

This preposing rule appears to serve the general principle of German word order, that definites precede indefinites; i.e.: order is in terms of increasing informational weight. The preposing rule moves definites leftwards; the indefinite subject shift rule moves indefinites rightwards, both in accordance with this principle.[3]

The preposing rule can move only subjects out of double accusatives:

(20) *Den Wein habe ich den Freund holen lassen.

(21) Den Freund habe ich den Wein holen lassen.

This is despite the fact that objects normally prepose freely (cf. (4)), and that a lower clause deep object can be freely preposed if the subject has been put into a von-phrase and is no longer an accusative (presumably this is done by passive):

(22) Den Wein habe ich von dem Freund holen lassen.

A possible motivation for these restrictions on word order, as I have said, is that when the deep subject and object bear the same surface case marking, only word order keeps structural ambiguity from arising, even if semantic ambiguity is impossible.[4]

What is interesting about this clause-bounded shift rule is that one might *a priori* suppose syntactic information to be less likely to get lost through clause-bounded rules than through long-distance rules. Therefore one might predict that clause-bounded rules would be less restricted than extraction rules in their application to potentially ambiguity-creating constructions. However, this is not the case. Not only are normal scrambling rules totally suspended whether or not the double accusative could give rise to semantic ambiguity; but also this preposing rule, the other clausebounded rule which could reverse the order of NP's in the double accusative, is restricted in its application even when no semantic ambiguity could arise. Extraction rules, on the other hand as we shall see, apply freely into double accusatives in sentences like (1) and (12): thus, clausebounded processes appear to be more severely restricted than long distance processes.

I.B.2 "Ambiguous double NP's": extraction rules are restricted.

So far as I know, there are no further restrictions on NP's in double accusatives as the targets of movement and deletion rules, except when the double accusative is semantically, as well as structurally, a potential source of ambiguity: that is, when both accusative NP's are animate. There are then very strong restrictions. I shall discuss, in this paper, the following rules: WH-movement, relativization, comparative deletion, and *es*-relatives. German also has tough movement, and of course, passive, but *hören/lassen/sehen* cannot embed under "tough" adjectives nor can they be passivized above transitive clauses;[5] so it's no surprise that tough movement and passive don't apply to NP's in ambiguous double accusatives (henceforth ADA's).

Before I discuss in detail the restrictions on the application of the above-mentioned rules into ADA's, I must demonstrate their general properties and determine the nature of their tarets. However, to show that extraction from ADA's is restricted, let me use the following examples of relativization and question movement.

(23) Der Freund, den ich meinen Bruder anrufen liess,..

(23) can only mean, "The friend that I had call my brother," never "The friend that I had my brother call." That is, the NP relativized out of the ADA can only be interpreted as being the subject of the lower clause. However, with WH-question movement, the case is otherwise:

(24) Wen liessest du deinen Bruder anrufen?

(24) can only mean, "Whom did you have your brother call?," never "Who did you have call your brother?" The NP question-

moved out of the ADA can only be interpreted as the object of the lower clause, never the subject.[6]

I shall go on to prove that question movement and comparative deletion both have indefinite targets, and can only extract objects from ADA's, while relativization and *es*-relativization have definite targets and can only extract subjects from ADA's. The constraint I propose to account for these facts is stated below.

II. Preposed constraint on the application of extraction rules into ambiguous double NP's.

Extraction rules with definite targets can only extract subjects out of ADA's; those with indefinite targets can only extract objects. Relativization is usually analyzed as having a definite target, and WH question movement as having an indefinite target. We shall investigate the nature of the targets of these and of *es*-relativization and comparative deletion, in the following sections of this paper.

The restriction I would like to postulate to account for the German facts, then, is the following:

If an extraction rule applies into an ADA, then any NP extracted must be a definite subject or an indefinite object.

III. Tests of indefiniteness and specificity in German.

Certain German constructions are restricted as to the definiteness and specificity of NP's which may occur in them. These constructions can therefore be used in other contexts as tests for the definiteness or specificity of an NP.

III.A.) An indefiniteness test.

Only indefinite NP's may occur as the NP following *gibt* in *es gibt*, the German existential construction.

(25) Es gibt schöne Blumen in dieser Stadt.
(There are beautiful flowers in this city.)

(26) *Es gibt die schöne Blumen in dieser Stadt.
(There are the beautiful flowers in this city.)

The *es-gibt* construction may only be used if the state being described is a customary or permanent one:

(27) Es gibt hier guten Kaffee.
(There's good coffee here - in general.)

(28) *Es gibt hier eine Tasse Kaffee.
(There's a cup of coffee here.)
(This was o.k. for one informant under the reading, "You can get a cup of coffee here." It can never mean one real cup of coffee: such a reading, if possible, would mean something unusable like "A cup of coffee exists here.")

Also, locational prepositional phrases appear to get worse with *es gibt* as the locations get smaller: (25) is fine, but (29) is bad, and (30) is a bit odd:[6]

(29) *Es gibt eine Blume in meinem Garten.
(There is a flower in my garden.)

(30) ?Es gibt in meinem Garten einen sehr schönen Baum.
(There is a very beautiful tree in my garden.)

Es-gibt never occurs with definite NP's. Nor can any NP that occurs in the *es-gibt* construction have a generic reading; this seems very normal, since generics usually pattern like definites rather than like indefinites. Therefore *es-gibt* may be used as a test: any NP occurring in this construction is thereby shown to be a non-generic (specific) indefinite.

III.B.) *Tests against specific indefinites*.

a.) In German, as in English, adjectival predicates do not allow specific indefinites as subjects:[7]

(31) Der Professor ist intelligent.
(The professor is intelligent.)

(32) *Ein Professor$_i$ ist intelligent.
(A professor$_i$ is intelligent.)

(32) is good with a generic reading of "Professors are generally intelligent," but bad with a specific reading: for example, it can't be followed by "Gestern habe ihn$_i$ gesehen" (I saw him$_i$ yesterday). The contrast between (33) and (34) shows that while the specific indefinite "Three students" is only good with contrastive stress on *drei*, the non-specific indefinite "many students" is fine.

(33) Drei Studenten sind intelligent. (*? without stress.)
(Three students are intelligent.)

(34) Viele Studenten sind intelligent.[8]
(Many students are intelligent.)

Specific indefinites are almost completely redeemable by adding relative clauses to them:

(35) Ein Frau, die ich kenne, ist intelligent.
(A woman I know is intelligent.)[9]

Non-complex NP's, however, can be tested for specific indefiniteness by observing whether they can be subjects of adjectival predicates.

b.) German "tough" predicates also have restrictions on specific indefinites:

(36) Mein Freund ist leicht zu erreichen.
(My friend is easy to reach.)

(37) *Ein Freund ist leicht zu erreichen.
(A friend is easy to reach.) - (O.K. generically)

(38) Es ist leicht, meinen Freund zu erreichen.
(It is easy to reach my friend.)

(39) *Es ist leicht, einen Freund zu erreichen.
(It is easy to reach a friend.) - (O.K. generically)

As in English, specific indefinites cannot occur as objects of clauses which are subjects of "tough" predicates, and therefore they also cannot occur as the tough-moved subjects of "tough" predicates.[10] Therefore "tough" sentences can be used to test for specific indefiniteness.

c.) *Selbst*/*selber* intensives in German.

Selbst and *selber* are intensive pronouns that are semantically equivalent to the English use of the reflexive pronoun as an intensive. *Selbst*/*selber* may occur on any definite NP, but are severely restricted with respect to occurring on indefinites.

1.) Adjacent *selber* (or *selbst*).

Indefinites can never take an adjacent selber; all definites can do so:

(40) Der student selber hat den Professor gefragt.
(The student himself asked the professor.)

(41) *Ein Student selber hat den Professor gefragt.
(A student himself asked the professor.)

(42) Diese Bucher wurden von dem Professor selber
(These books were read by the professor himself.)

gelesen.

(43) *Diese Bucher wurden von einem Professor selber
(These books were read by a professor himself.)

gelesen.

(44) Den Professor selber habe ich gefragt.
(I asked the professor himself.)

(45)*Einen Professor selber habe ich gefragt.
(I asked a professor himself.)

2.) "Floated" selber.

A selber connected with a subject NP may be floated away from that NP:

(46) Der Student hat den Professor selber gefragt.
(either "The student asked the professor$_i$ himself$_i$"
or "The student$_i$ himself$_i$ asked the professor.")

(47) Der Student hat einen Professor selber gefragt.
(only "The student$_i$ himself$_i$ asked a professor,"
since indefinite NP's can't take adjacent selber's.)

Non-subjects cannot float a selber; in (48), selber may not refer back to the object:

(48) Den Professor habe ich selber gefragt.
(only "I asked the professor myself,"
not "I asked the professor himself.")

(49) Den Professor selber habe ich gefragt.
(I asked the professor himself.)

The interesting fact about *selber*-float is that generic indefinite subjects can take floated *selber* (although, being indefinite, they cannot take adjacent *selber*):

(50) *Ein Professor selber kann Homer lesen.
(A professor himself can read Homer.)

(51) Ein Professor kann selber Homer lesen.
(A professor$_i$ can read Homer himself$_i$.)

(51) is good in the generic sense in which it means that in general professors can read Homer themselves, not just hear about him; in a specific sense, meaning some real professor, it's completely out. An indefinite quantifier helps sentences with *selber* floated from an indefinite. (52) is quite good:

(52) Viele Studenten konnten selber Homer lesen.
(Many students could read Homer themselves.) - (Best in a context like "In those days....")

Specific indefinites, however, can't take floated *selbers* any better than adjacent ones:

(53) *Ein Student hat selber den Professor gefragt.
(A student$_i$ asked the professor himself$_i$.)

(54) Ein Student hat den Professor selber gefragt.
(*only* "A student asked the professor$_i$ himself$_i$,"
not "A student$_i$ asked the professor himself$_i$.")[11]

But specific indefinites never take a *selber* at all unless they are complex NP's.

To summarize the *selber*-intensive facts:

1.) Adjacent *selber* only occurs with definite NP's, and can occur with any definite NP.

2.) *Selber* can be floated only by a subject.

3.) Definite or generic subject NP's may take a floated *selber*.

4.) Specific indefinite subjects may take floated *selber* only if they are complex NP's.

Summary of Definiteness/Indefiniteness tests.

The following chart summarises our test constructions, and what the restrictions on definites, indefinites, and specific indefinites in those constructions are:

construction	*def's*	*indef's*	*specific indef's*
es-gibt	no	yes	yes
adjectival pred's	yes	yes	no
TH	yes	yes	no
adjacent *selber*	yes	no	no
non-adjacent *selber*	yes	yes	only if complex NP

IV. *Definiteness and indefiniteness of targets of German extraction rules.*

In this section of the paper, I will examine German extraction rules, using the tests from the preceding section to determine what the definiteness and specificity of each rule's target is.

1.) *Relativization.*[12]

(55) $\left\{\begin{matrix}\text{Der}\\\text{Ein}\end{matrix}\right\}$ Mann, der intelligent ist....

($\left\{\begin{matrix}\text{The}\\\text{A}\end{matrix}\right\}$ man who is intelligent....)

Since a relative pronoun may be the subject of an adjectival predicate, it appears to be definite. (56), (57), and (58) show that relative targets may take adjacent selber intensives, may undergo tough movement, and cannot occur in the es-gibt construction: all of these facts indicate that they are definite:

(56) $\begin{Bmatrix}\text{Ein}\\ \text{Der}\end{Bmatrix}$ Mann, der selber zu Hause geblieben ist,....
$\begin{Bmatrix}\text{A}\\ \text{The}\end{Bmatrix}$ man who stayed home himself....)

(57) $\begin{Bmatrix}\text{Ein}\\ \text{Der}\end{Bmatrix}$ Mann, der leicht zu erreichen ist,....
$\begin{Bmatrix}\text{A}\\ \text{The}\end{Bmatrix}$ man who is easy to reach....)

(58) *(Die) Blumen, die es in dieser Stadt gibt....
(The flowers that there are in this city....)

2.) WH-Question-Movement

(59) *Wer ist klein?[13]
(Who is small?)

WH-words cannot be subjects of an adjectival predicate, as (59) shows. They also cannot take selber intensives, cannot occur as objects of clauses embedded under "tough" predicates or undergo TM, and can occur in the es-gibt construction:

(60) *Wer ist selber zu Hause geblieben?
(Who stayed at home himself?)

(61) *Wer selber ist zu Hause geblieben?
(Who himself stayed home?)

(62) *Wer hat selber den Professor gefragt?
(Who_i asked the professor himself_i?)

(63) *Wer ist leicht zu erreichen?
(Who is easy to reach?)

(64) Was gibt es auf deinem Grundstück?
(What is there on your land?)

The fact that question words cannot take even non-adjacent selber suggests that they are specific indefinites, as do the tough-predicate facts. Like specific indefinites in general, they are improved in these environments by the addition of a relative clause:

(65) Wer, {den du kennst, } ist leicht zu erreichen?
{von diesen studenten,}
(Who {that you know } is easy to reach?)
{among these students}

(66) Wer, {der in dieser Stadt wohnt,} hat selber Homer gelesen?
(Who$_i$ {that lives in this city} has himself$_i$ read Homer?)

3.) Es-relatives

German has a transformation of es-relativization, similar to English it-relativization. The sentences this transformation produces are at least as marked as English it-relatives; nearly all of them are distinctly contrastive: "It was X that I saw," implies, "...and not Y." Hankamer and Pinkham (1975) have argued for the existence of both an it-relative and an it-cleft construction in English. That is, they have argued that some sentences of the surface form "It was the banana that I ate" must be derived by it-relativization from a deep structure like "It (that I ate) was the banana," while other sentences of similar or even identical surface form must be derived by a rule of clefting from a deep structure like "I ate the bananas."[14]

What I shall demonstrate for German, however, is different: German *es*-relativization and clefting both exist but can never give rise to identical surface sentences. As in English it-relatives, only NP's can be *es*-relativized. But in German NP's cannot be clefted; only unambiguous prepositional-phrase clefts can be formed, as in (67):

(67) Es war erst nach dem Kriege, dass ich ihm wiedersah.
(It was only after the war that I saw him again.)

(67) is unambiguously a clefted sentence, since (as Hankamer and Pinkham observed) neither a headless nor a headed relative analysis can successfully account for PP-clefts, nor do cleftable constituents correspond to possible headed relative clauses. On the other hand, (68) is an *es*-relative sentence, as I shall demonstrate:

(68) Es war ein Polizist, der den Soldat geschlagen hat.
(It was a policeman who hit the soldier.)

One of the surface differences between the two constructions is that they use different complementizing elements: the clefting structure uses *dass*, the usual complementizer for tensed embedded clauses in indirect discourse, while the *es*-relative construction uses the relative pronoun (*der*, *die*, *das*), which is identical in form with the definite article. This usage is similar to that of the English clefting rule, which uses the complementizer "that," identical with both the relative pronoun and the indirect discourse complementizer. Assuming that the English clefting and it-relativization rules must be differentiated as Hankamer and Pinkham have argued, the English it-relative "that" is a relative marker, while the it-cleft "that" is a complementizer. The German case merely differentiates between the two in spelling (and in pronunciation; historically, even between *dass* and *das*). But, beyond this distinction of complementizers, it can be shown that the two rules must be analyzed separately in German syntax.

The German clefting rule is quite restricted in its application. While nearly all speakers find (67) fine, and also accept locative PP-clefts such as (69), they don't like benefactive (*für*) or directional (*in* with accusative NP) PP clefts nearly as well:

(69) Es war in der Bibliothek, dass ich ihn kennenlernte.
(It was in the library that I met him.)

(70) *Es war für sie, dass er es getan hat.
(It was for her that he did it.)

(71) *? Es war ins Kino, dass sie gegangen sind.
(It was to the movies that they went.)

Similarly, *mit* and *von* phrases are quite bad clefted:

(72) *Es war von dem Student, dass dieses Buch gelesen
(It was by the sudent that this book was read.)
wurde.

(73)*Es war mit Gisela, dass er ins Kino gegangen war.
(It was with Gisela that he went to the movies.)

Hankamer and Pinkham have observed that, in English, simple locative and temporal PP's cleft best, with a progression downwards from these to other PP's. This same scale appears to exist in German.[15] In English, however, there was a possible motivation for the scale ready to hand: since the English clefting rule moves NP's best, Hankamer and Pinkham postulated that those PP's which were most NP-like were the most easily clefted. It seems strange, however, that in German a scale of nouniness would determine the mobility of a PP by a rule which cannot move NP's. For German NP's are not cleftable. The argument for this, which I shall now present, is twofold: first, I shall demonstrate that a clefting analysis predicts the grammaticality of certain ungrammatical sentences, and then I shall show that a derivation by _es_-relativization instead of by clefting will account for the ungrammaticality of these sentences, while still generating all the necessary grammatical sentences. The same facts will also prove that _es_-relativization has a definite target.

An _es_-relative analysis predicts that the NP in focal position should not be subject to the restrictions imposed by the lower clause on the NP in target position; a clefting analysis, since it assumes that the focal constituent is also the target, predicts that it should be subject to the lower clause's restrictions. A rule of clefting would not be restricted as to the definiteness of its NP targets; as we have seen, it can move PP's (which have no characteristics of definiteness or indefiniteness). However, as (74) shows, the rule in question cannot move NP's out of the _es_-_gibt_ construction, which is normally not an island (we have seen, for example, that WH-question-movement can move NP's from it.):

(74) *Es waren (die) schöne Blumen, die es in dieser
(It was (the) beautiful flowers that there were
Stadt gab.
in this city.)

This indicates that the target of the transformation cannot be indefinite.

(75) Es war $\left\{\begin{array}{l}\text{ein Polizist,}\\ \text{mein Bruder}\end{array}\right\}$ der so klein war.
(It was $\left\{\begin{array}{l}\text{a policeman}\\ \text{my brother}\end{array}\right\}$ who was so small.)

(75) shows that the target of the transformation is not a specific indefinite, since the moved NP in (75) was the subject of an adjectival predicate (klein) before movement took place.

(76) Es war $\left\{\begin{array}{l}\text{ein Polizist,}\\ \text{mein Bruder}\end{array}\right\}$ der schwer zu finden war.
(It was $\left\{\begin{array}{l}\text{a policeman}\\ \text{my brother}\end{array}\right\}$ who was so small.)

(76) is further evidence that the target is not a specific indefinite, since in (76) the moved NP had previously undergone tough movement.

(77) Es war $\left\{\begin{array}{l}\text{ein}\\ \text{der}\end{array}\right\}$ Professor, der selber Homer gelesen hatte.
(It was $\left\{\begin{array}{l}\text{a}\\ \text{the}\end{array}\right\}$ Professor who had himself read Homer.)

(77) is evidence that the movement rule in question can move definites, since the target NP here had an adjacent selber intensive and is therefore evidently definite.

An *es*-relative analysis is necessary to account for the generation of certain of the sentences above. In (75), (76), and (77) the versions with indefinite NP's in focal position cannot have been generated by clefting, since indefinite NP's cannot have originated in the target positions in the lower clauses in these sentences without disobeying general constraints against indefinites occurring as subjects of adjectival predicates, undergoing TM, or taking adjacent *selber* intensives. That is, the focal constituent cannot be the target in these sentences. Therefore only an *es*-relative analysis, under which the focal constituent originates in its surface position (what is moved is the relative pronoun), can account for the existence of these sentences.

Likewise, a clefting analysis would predict wrongly that the version of (74) with an indefinite focal constituent should be grammatical; however, no version of (74) is grammatical. The only way to block these ungrammatical sentences under a clefting analysis would be to block clefting of indefinite NP's. However, this is not only unmotivated, but insufficient to generate the correct sentences. Such a clefting rule would still require the existence of an *es*-relativization transformation to generate the versions of (75), (76), and (77) with indefinite focal constituents, since under no circumstances can the focal constituent in those sentences have been the target of the movement rule.

On the other hand, an es-relative analysis of (74)-(77) accounts for both grammatical and ungrammatical sentences, if es-relativization has a definite target. (74) is impossible, since indefinites cannot be extracted by this rule. (75)-(77) are good since definites can be extracted by this rule. The focal constituents are base-generated in their surface positions; this is why none of the lower-clause restrictions apply to the focus NP's.

Since an es-relative analysis by itself accounts for all the facts, while a clefting analysis either is superfluous (if restricted, in an unmotivated fashion, to moving only indefinites) or even generates ungrammatical sentences, we are forced to conclude that an NP-clefting analysis for German is incorrect. This leaves us with the interesting problem of why PP's are more cleftable as they are nounier, if nouns are not cleftable. I would be tempted to conclude that the two structures are surface-parallel enough to make PP's feel better in that position if they are nounier, since NP's are the only other constituent occurring in that position.

It is clear, then, that the German rule of es-relativization exists, is distinct from clefting, moves only NP's, and is restricted to definite targets.

4.) Comparative deletion.

The German rule of comparative deletion is similar to the English one. It deletes from a target *als*-clause an NP lexically identical to the to the trigger NP, but with an indefinite quentifier rather than a comparative quantifier, as in (78):

(78) Er sah mehr Soldaten, als sein Bruder ∅ sah.
(He saw more soldiers than his brother saw.)

I shall be concerned with the properties of this NP-deletion, and not with the various other rules that delete things in comparative target-clauses.[16]

a.) *the target of comparative deletion*

Comparative NP-deletion can apply to an NP in the *es*-*gibt* construction:

(79) Es gab in Deutschland mehr Blumen, als es in
(There were more flowers in Germany than there

Amerika gab.
were in America.)

Since the deleted NP in (79) was in the *es*-*gibt* construction, it must have been indefinite.

However, targets of comparative deletion can also be the subjects of adjectival predicates:

(80) Mehr Leute sind schön, als intelligent sind.
(More people are good-looking than intelligent.)

There are two kinds of non-generic indefinites which we found earlier to be possible subjects of adjectival predicates: complex NP's and quantified NP's. Since the NP in question here is not complex, the evidence indicates that it must have had an indefinite quantifier.

Non-adjacent *selber* intensives do occur with the targets of comparative deletion:

(81) ? Mehr Studenten konnten Gedichte schreiben, als
(More students could write poems than

selber Homer lesen konnten.
could read Homer themselves.)

This sentence is not perfect, but is quite good. As with adjectival predicates, we found that only a relative clause or a quantifier could make an indefinite NP good with *selber* (see (58)). So once again, the evidence points to a quantified indefinite target for comparative deletion.This seems semantically logical, since what are being compared in a sentence like (81) are two indefinite quantities, one greater than the other.

Comparative deletion, then, has an indefinite target, and my prediction is therefore that it will manifest behavior like WH-question movement (rather than like rules with definite targets) with respect to movement out of ADA's.

b) *restrictions on comparative deletion*.

There are some very specific restrictions on the application of German comparative deletion (CD) even in ordinary (non-ADA) sentences. First, CD cannot delete an object target NP from a transitive subject trigger:

(82) * Mehr Studenten haben den Roman dieses Professors
(More students have read this professor's novel

gelesen, als er kennengelernt hat.
than he has met (Q students).)

As (83)-(84) show, either a transitive or an intransitive subject may be deleted from a transitive subject trigger:

(83) Mehr Studenten haben den Roman dieses Professors
(More students have read this professor's novel

gelesen, als ihn kennengelernt haben.
than (Q students) have met him.)

(84) Mehr Studenten haben gestern diesen Roman gelesen,
(More students read this novel yesterday

als ins Kino gegangen sind.
than (Q students) went to the movies.)

Secondly, a converse restriction holds: CD cannot delete a transitive subject target NP from an object trigger:

(85) * Er hat mehr Studenten kennengelernt, als
(He has met more students than

seinen Bruder kennengelernt haben.
(Q students) have met his brother.)

(86) * Er hat mehr Studenten kennengelernt, als
(He has met more students than

seinen Roman gelesen haben.
(Q students) have read his novel.)

As (87)-(88) show, either an intransitive subject or a transitive object may be deleted from an object trigger:

(87) Er sah mehr Studenten, als in die Bibliothek gegangen sind.
(He saw more students than (Q students) went to the library.)

(88) Er lernte mehr Studenten kennen, als sein Bruder kennenlernte.
(He met more students than his brother met (Q students).)

Any combination of trigger and target is allowable, in fact, other than transitive subject and object.[17]

Comparative deletion might thus appear to require a certain parallelism between trigger and target: transitive subjects and objects are too dissimilar. It is interesting to note, however, the possibility that what is really involved here is an ambiguity-avoiding measure. The verb-final word order of German subordinate clauses puts subject and object in adjacent positions; this does not create ambiguity, since case (and verb form, on occasion) distinguish subject from object, even when word order has been changed for emphasis. The movement rules we have examined preserve the case of the target NP and the verb form in the target clause. But a deletion rule automatically loses the case of the deleted NP. Verb form does not always differentiate subject from object. It is possible that it is for this reason that German speakers need to constrain CD so that a transitive subject cannot trigger deletion of an object, or vice versa; since an intransitive clause has only one NP complement, there can be no possible doubt as to what NP was deleted from it, so there is no constraint on intransitive subjects. Although the constraints on CD are unrelated to the general constraint on extraction from ADA's, they interact with it, as I shall demonstrate later in this paper.

V. The Application of Extraction Rules into ADA's.

Having determined that certain structures are tests for definiteness, I have used these tests to prove that relativization and es-relativization have definite targets, while WH question-movement and comparative deletion have indefinite targets. Now at last we are ready to examine the application of these extraction rules into ADA's, to see whether the proposed constraint accounts for the facts, and correctly predicts the behavior of the two rules not previously examined.

a.) Relativization.

German relative movement can ordinarily apply to any definite NP target, and operates like the corresponding English rule, although in German pied piping of prepositions is obligatory. However, if it could relativize either of the two NP's out of an ADA, ambiguity would arise when the word order no longer told the hearer which NP was subject and which was object. And in fact, as previously mentioned, it cannot relativize indiscriminately out of ADA's. It can only move subjects out of ADA's; example (89) can only mean, "The brother I had call my friend:"

(89) Der Bruder, den ich meinen Freund anrufen liess...

A deep object can be relativized in such a sentence if and only if the deep subject is marked with a von-phrase (as mentioned above:

(90) Der Freund, den ich von meinem Bruder anrufen liess...
(The friend that I had called by my brother...)

b.) WH Question Movement

German WH-movement, as previously demonstrated, can only move objects from ADA's: (91) can only mean, Who(m) did you have your brother call?," not "Who did you have call your brother?"

(91) Wen liessest du deinen Bruder anrufen?

Once again, von-phrase marking can destroy the ADA and allow the old subject, marked with von, to be question-moved:

(92) Von wem liessest du deinen Freund anrufen?
(By whom did you have your friend called?)

c.) Comparative Deletion

German comparative deletion. as previously mentioned, deletes from a comparative clause an NP lexically identical to an NP in the matrix clause but with an indefinite quantifier.It can normally delete transitive subjects from only subject triggers, and objects from only object triggers. It does apply into double accusatives:

(93) Der König liess seine Söhne mehr Bücher lesen,
(The king let his sons read more books

als er seine Töchter kaufen liess.
than he let his daughters buy (Q books).)

However, it can delete only objects from ADA's, and only when the subject left behind is definite:

(94) Der König sah die Polizisten mehr Soldaten schlagen,
(The king saw the policemen hit more soldiers

als er die Mädchen küssen sah.
than he saw the girls kiss (Q soldiers).)

(95) ? Der König sah Polizisten mehr Soldaten schlagen,
(The king saw policemen hit more soldiers

als er die Mädchen küssen sah.
than he saw the girls kiss (Q soldiers).)

(94) is better than (95), perhaps because speakers prefer parallelism in definiteness between the subjects of the two clauses. However, these sentences are good; and speakers specifically must interpret die Mädchen as the subject, not the object, of the lower clause, and the deleted Q Soldaten as the object.

There are in German fairly good sentences of the same surface form as (94) and (95), with indefinite NP's in the lower clause:

(96) ✓? Der König sah die Polizisten mehr Soldaten
(The king saw the policemen hit more soldiers

schlagen, als er Mädchen küssen sah.
than he saw (Q) girls kissing (unspecified people).)

However, (96) and all sentences like it lack any interpretation under which an NP has been extracted by comparative deletion; subdeletion has taken place, but the verb in the lower clause must be interpreted in an intransitive sense, as meaning "doing some kissing," and so in fact there was never a double accusative in this sentence, nor has any NP been comparative-deleted. There are no good sentences of this surface form resulting from comparative deletion.

Since comparative deletion (CD) is ordinarily restricted from deleting an object from a transitive subject trigger, the generalization that extractions with indefinite targets can only extract objects should predict that CD cannot operate from a subject trigger into German ADA's. This is in fact true:

(97) * Der König sah mehr Polizisten (die) Soldaten
schlagen, als er Mädchen küssen sah.

(97) is pretty bad. If it has a reading at all, however, it isn't a CD reading, but one like "The king saw more policemen hit (the) soldiers than he saw (Q) girls doing kissing (of unspecified people)."

The only possible exceptions to the constraints on CD are sentences like (98):

(98) *? Der König sah mehr Polizisten (die) Soldaten
schlagen, als er die Mädchen küssen sah.

(98) is bad, but not total word salad. However, unlike (97), (98) can't be given a subdeletion reading; since the NP remaining in the lower clause is definite, it can't possibly be the target of quantifier subdeletion. Speakers puzzle over (98) and can't agree on meanings: some interpret die Mädchen as subject, and some as object. Either way, a constraint is violated; for if die Mädchen is the subject of

the lower clause, then the object is Q Polizisten, and CD has applied from a transitive subject trigger to an object target; while if die Madchen is object, Q Polizisten is the subject, and CD has left behind a definite object. It is hardly surprising, therefore, that these sentences are pretty awful. If any other interpretation were possible, no speaker would stretch (98) to a CD interpretation.

The fact that sentences like (94) and (95) are the only good examples of the application of CD into ADA's, then, is predicted by the interaction of the constraint of CD trigger and targets with the constraint on extraction from ADA's.

On the basis of comparative deletion, it would be interesting to postulate that for deletion rules, unlike movement rules, it matters what gets left behind[18]; that you can only leave a definite subject if you're extracting an object, or an indefinite object if you're extracting a subject. If German had a relative deletion rule like English, this proposal would predict that relative deletion would have different restrictions on its output than relative movement has. Unfortunately no such rule exists, nor do I know of any German deletion rule on which to test my hypothesis.

d.) *Es*-Relatives

German *es*-relativization, like English it-relativization, can normally move definite NP's from any position in the clause. Not so when applying into an ADA, however:

(99) ?? Es waren Polizisten, die der König die Soldaten
(acc.)
verhaften liess.
(It was policemen that the king had arrest
the soldiers.)

(100) ?? Es waren die Polizisten, die der König die
Soldaten verhaften liess.
(acc.)
(It was the policemen that the king had arrest
the soldiers.

(101) Es waren Polizisten, die der König Soldaten
(acc.)
verhaften liess.
(It was policemen that the king had arrest soldiers.)

(102) Es waren die Polizisten, die der König Soldaten
(acc.)
verhaften liess.
(It was the policemen that the king had arrest
soldiers.)

Sentences (99) and (100) are very odd for most speakers. However, (99)-(102) are evidence that *es*-relativization cannot move anything but a subject out of an ADA. The NP's remaining in the lower clause can only be interpreted as being objects.[19]

VI. Does the hypothesis correctly predict the facts?

The following facts have been determined about the targets of German extraction rules and about their abilities to extract from ADA's:

rule	nature of target	can extract from ADA's
relative mvt.	definite	subjects only
WH question mvt.	specific indef.	objects only
CD	quantified indef.	objects only; and further restrictions
es-relzn.	definite	subjects only

Thus the proposed constraint appears to work, since the rules with definite targets can in fact only extract subjects from ADA's, while rules with indefinite targets can only extract objects. I have discussed already the further complications in determining what part of the restrictions on comparative deletion are due to parallelism requirements and which may be related to deletion rules in general. It would be interesting if the fact that only definites can be left behind by CD were indicative of general restrictions on what deletion rules can leave behind, because this might indicate that deletion, which totally destroys outward evidence of its target's nature (e. g., relative pronouns are presumably definite, while WH-words are indefinite.). In other languages, I shall attempt to investigate deletion rules more thoroughly; unfortunately,as stated earlier, no others apply into German ADA's.

VII. The universal basis of the constraint on extraction from ADA's, and a prediction.

What is going on in these German double accusative sentences appears to me to be related to a universal correlation between word order, definiteness, and subjecthood. Keenan[20] has observed that universally subjects tend to precede objects, and that while many languages have subject-initial order in deep structure, almost none have subject-final deep order. As mentioned in section IA, many languages also show a tendency to put old information leftwards and new information rightwards, to the extent that word order is flexible. Keenan has postulated that subjecthood is in fact universally associated with definiteness. Interestingly enough, since relativization universally has a definite target, a connection between subjecthood and definiteness might help to explain why there are languages where only subjects are relativizable, but none where subjects are less relativizable than other NP's. Keenan explains this as part of a general NP accessibility hierarchy (Keenan 1972), in which subjects are simply more extractable than objects. However, the German facts do not follow such a hierarchy, rather they use a correlation between subjecthood and definiteness as the basis for a constraint allowing definite-extracting transformations to extract subjects and indefinite-extracting transformations to extract objects. Objects do not appear to be inherently less extractable than subjects.

German, as observed in section IA, has restrictions on word order which tend to place subjects before objects and definites before indefinites. However, for extraction from an ADA to be good, the target must be in the standard order position for both its definiteness/indefiniteness status and its subject/object status; if the required SO order of ADA's causes the (elsewhere merely preferential) order of the informational weight principle to be violated, then subsequent extraction of either NP is impossible. That is, when semantic ambiguity could exist, definiteness and word order must be interpreted as coinciding to make a "classical" subject or object; otherwise the sentence is out.

The question raised by these German facts is how other languages avoid ambiguity in structures like ADA's. How are transformations restricted from giving rise to semantic ambiguity, when they destroy crucial word-order information through extraction? I predict that universally, extraction will only be possible from an ambiguous double NP (ADNP) (defined as two adjacent NP's whose functions are only distinguished by word order) if the order of the two NP's obeys both (1) the language's preferential order for different syntactic functions (*e.g.*, S O IO) and (2) the language's informational-weight ordering preference (whatever the specific manifestation of the informational-weight principle in that language may be). If these two orderings violate each other in the case of a given ADNP, then neither NP will be extractable.

Footnotes

* First of all, I would like to thank my informants, who cheerfully volunteered their time to hear their language butchered: Monika Totten, Hannelore Gresser, Jens Rieckmann, Erich Woisetschlaeger, Gisela Mäkemson, and Annette Holtfrerich. I worked with the first three of them during spring 1975, and with the other three during winter 1975-6. Unless otherwise indicated, the reader may assume that there was agreement in judgements; nearly all of the double-accusative sentences were judged by all six. Secondly, thanks to Grant, Liz, and Caleb, all of whom helped with typing at various stages. Finally, for encouragement, help, and judicious pressure, I thank Judith Aissen and Jorge Hankamer, who taught me how to do syntax, and for whose course this was written. All errors are my own responsibility entirely.

1 This generalization was first suggested to me by Jorge Hankamer.

2 Reis' paper argues for an analysis under which the lower clause's S-node is "pruned" when its subject is moved up to the higher clause (thus leaving the lower clause with no branches, only a VP-node under S). The clause-boundaries are removed by this pruning, and the old lower-clause material is part of the upper clause. A clause-union analysis (under which the two verbs are simply made into one compound verb, and the lower-clause elements join the upper clause) would also be defensible on the basis of Reis' argument; what she argues against is a simple raising analysis.

3 A great many people have discussed informational "weight" in various languages. See Mathesius (1975) and Sgall, Hajičova, and Benešova (1973).

4 Only double accusatives appear to have any restrictions on extraction; accusative-dative NP sequences are generated with _geben_, and with dative-object verbs like _folgen_, when these are embedded under _lassen_ or _sehen_. But there are no problems with extraction from such sequences. For example, the following sentences are fine:

(103) Wen liessest du deinem Vater folgen?
(acc.) (dat.)
(Who did you have follow your father?)

(104) Wem liessest du deinen Vater folgen?
(dat.) (acc.)
(Who did you have your father follow?)

If the case distinguishes subject from object, even in a different manner from the usual nominative-accusative marking, extraction is unrestricted.

5 Reis claims to get passives of *lassen* when the lower clause is intransitive; none of my informants get these at all. And in no case can passivization of *lassen*, *hören*, or sehen take place above a transitive lower verb (which is the only kind of verb that can give rise to a double accusative).

6 The reason (30) is better than (29) appears to be that a tree is more permanent than a flower, and *es-gibt* is better when describing permanent or customary states, as mentioned. But (30) is distinctly worse than (25) or (27), and so is the following example, even though it may be interpreted as describing a customary state:

(105) ? Es gibt in meinem Garten schöne Blumen.
(There are beautiful flowers in my garden.)

7 Except, also as in English, a few adjectives like *krank* ("sick") and *besoffen* ("drunk"). Milsark (1974, p. 40) discusses these in English, and makes the generalization that adjectives describing temporary states (like "sick"), as opposed to permanent states (like "tall") can all take specific indefinite subjects.

8 Cardinal numbers appear to have at least a preferentially specific reading in both English and German. This makes them at least dubious with subjects of adjectival predicates. But even without stress, (33) is not as bad as (32); it appears that quantifiers do improve these sentences somewhat.

9 Certain other kinds of predicates, such as modals, also do not allow specific indefinite subjects; and the same facts are observable with them:

(106) Der Student kann Homer lesen.
(The student can read Homer.)

(107) * Ein Student kann Homer lesen. (only good generically)
(A student can read Homer.)

(108) *? Drei Studenten können Homer lesen.
(Three students can read Homer.)
(good with stress on *drei*)

(109) Viele Studenten können Homer lesen.
(Many students can read Homer.)

(110) Ein Student, den ich kenne, kann Homer lesen.
(A student I know can read Homer.)

10 Once again, as with subjects of adjectival predicates, a relative clause can save the sentence:

(111) Ein Professor, den ich kenne, ist leicht zu erreichen.
(A professor I know is easy to reach.)
(bad without a relative clause)

11 By the addition of a relative clause, a specific indefinite can be redeemed far enough to allow a floated (not an adjacent) selber:

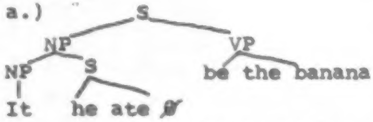
(112) Ein Student$_i$, den ich kenne, hat selber$_i$ den Professor gefragt.
(A student$_i$ I know asked the professor himself$_i$.)

12 The tests developed in this paper are extended from those of Morgan (1972), which he used to show that relative clauses in English have definite targets.

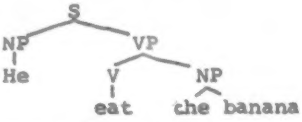
13 This sentence is bad in an out-of-the-blue context, but fine in a context where (for example) someone has just said, "OK, somebody has to climb through the transom." The crucial difference between the two cases appears to be the amount of context and information that the listener has. The same is probably true of the sentences which were improved by relative clauses; the relative clause added sufficient information to make the NP acceptable in a context which normally requires a definite.

14 Hankamer and Pinkham's two deep structures for the surface sentence, "It was the banana that he ate" are the following:

a.)



b.)



(a) undergoes it-relativization, and (b) may undergo clefting, to give the same surface sentence.

15 I had one informant who liked mit and für clefts much better than my other informants did. Interestingly enough, he also gets (as highly questionable, but not as the word salad that most speakers find them) examples of NP-clefts, as I shall discuss later.

16 One such process is subdeletion, which merely deletes a quantifier in the lower clause, as in (113):

(113) Er sah mehr Soldaten, als sein Bruder Ø Polizisten sah.
(He saw more soldiers than his brother saw Ø policemen.)

Another set of comparative sentences to be distinguished from comparative deletion sentences are those which have undergone ellipsis, thus losing all material in the target clause identical to material in the trigger clause, as in (114):

(114) Er sah mehr Soldaten als sein Bruder.
(He saw more soldiers than his brother (saw Q soldiers.))

However, neither subdeletion nor comparative ellipsis is an NP extraction rule, and so neither is at issue in this paper.

17 I had one informant who had an even stronger restriction on deletion from object position: she would not even allow deletion of an intransitive subject from an object trigger. She shared with other speakers the two constraints I have mentioned on CD. Her additional constraint does not seem relevant to the application of CD into ADA's, which by their very nature can only come from transitive clauses. With her exception, the description of CD given in this paper seems fairly uniform among speakers.

18 In ellipsis rules it appears that, unlike deletion-extraction rules, all that matters is what's left behind. German comparative ellipsis, for instance, can only leave behind definite subjects and indefinite objects:

(115) Der Konig liess seine Sohne mehr Soldaten kennlernen als Madchen.
(only means The king let his sons meet more soldiers than (he let his sons meet Q) girls.)

(116) Der Konig liess seine Sohne mehr Soldaten kennenlernen als die Madchen.
(Means either The king let his sons meet more soldiers than (he let) the girls (meet Q soldiers).
or The king let his sons meet more soldiers than the girls (let his sons meet Q soldiers.)
In either case, die Madchen is interpreted as a subject.)

19 One speaker at first appeared to be an exception to this rule: he said that if (99) and (100) were OK, he got two readings for them - one where the NP remaining behind was interpreted as subject, and one where it was interpreted as object. However, he is also the only speaker I worked with who likes a fairly wide range of PP-cleft sentences, and he even finds a few NP-clefts to be not totally bad. If he indeed has a rule of clefting which (in a very limited fashion) applies to NP's (as my other informants' clefting rules do not), then it may be that he can cleft non-subjects out of ADA's. He does not find either (99) or (100) to be very good

sentences. I suspect that this is because the NP left behind is definite, and there is a tendency to interpret definites as subjects in ADA's; this may also explain why (99) and (100) are not perfect for most German speakers. However, there is then no real evidence that the process of _es_-relativization moves anything but subjects out of ADA's, even in the case of this speaker; and for others, who cannot cleft NP's, there is agreement that only subjects can be moved from ADA's by _es_-relativization.

20 Keenan discussed this at length in his Universal Grammar course at the 1974 LSA summer Linguistic Institute, and also in his paper, "NP Accessibility and Universal Grammar" (1972).

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Some Arguments against the Interpretive Theory of Pronouns and Reflexives

Höskuldur Thráinsson
Harvard University

0. Introduction

It is possible to divide theories of pronouns and reflexives[1] into two classes on the basis of coreference marking. One class of theories maintains that noun phrases, including pronominal forms, are unmarked for coreference relations in deep structure, and that coreference is assigned interpretively at a (relatively) superficial level. I will refer to this class of approaches as "the interpretive theory of pronouns and reflexives". Theories of the other class assume that noun phrases are marked for coreference relations in underlying structure. This class includes both standard transformational theories of pronouns and reflexives, such as Lees and Klima (1964), Ross (1969), etc., and some less strictly transformational approaches.[2]

In this paper I am going to argue that any theory which assigns coreference interpretively is bound to lose an important generalization about the distribution of pronouns and reflexives. I will also show that a theory which assumes base generated coreference marking can easily capture this generalization. I will use a standard transformational theory to show this. It should be noted, however, that I am not arguing that pronouns and reflexives must be transformationally introduced. The evidence presented in this paper only constitutes an argument against interpretive assignment of coreference marking and for the claim that coreference is marked in underlying structure. In other words, the facts discussed in this paper could presumably be accounted for by several variants of the theory which assumes underlying coreference marking of noun phrases, but they involve serious problems for the theory that assumes interpretive coreference assignment.

The organization of the paper is as follows. In section 1. it is shown that there is an important relation between Pronominalization and Reflexivization, namely that pronouns and reflexives are in complementary distribution within simple clauses in several languages. It is argued that any theory of pronominal reference has to be able to account explicitly for this fact. In section 2. we will see that both an interpretive theory and a transformational theory of pronouns and reflexives can capture this generalization in the simplest cases. In section 3. it is shown that in more complex cases the interpretive theory fails whereas the transformational theory can still account for the observed facts quite easily.

In the past it has turned out to be very difficult to find clear cases that would distinguish between the two classes of theories of pronouns and reflexives described above. Therefore I believe that the evidence presented in this paper against the interpretive approach is of considerable theoretical importance.

1. The complementary distribution of pronouns and reflexives

1.0 A rule of "disjoint reference"

In this section I will argue that any theory of pronominal reference which assumes that the rules of Pronominalization and Reflexivization are completely independent of each other is bound to lose an important generalization. To see this we shall consider an interpretive rule of "disjoint reference" (DR) which has been proposed by Chomsky in a recent paper (1975). This rule can be stated informally as follows (Chomsky 1975:18):

(1) Assign disjoint reference to a pair (NP,pronoun)

This rule is supposed to be subject to Chomsky's specified subject condition (cf. Chomsky 1973 , and Chomsky 1975:15), but we need not go into that here, since our point can be illustrated by simplex sentences.

In Chomsky's framework pronouns are freely generated in the base. Given sentences like the following:

(2) John hates him

(3) The men hate them

(4) He hates him

the interpretive rule of DR tells us that the NP *John* and the pronoun *him* in (2) cannot be coreferent, nor can the NP *men* and the pronoun *them* in (3). The rule will also account for the noncoreference of *he* and *him* in (4). Similarly, the strangeness of sentences (5)-(6) is attributed to this rule (cf. Chomsky 1975:18):

(5) *I hate me

(6) *You hate you

The rule of DR assigns disjoint reference to *I* and *me* in (5), but disjoint reference is clearly impossible in this case for semantic (or pragmatic?) reasons. Therefore the sentence is anomalous - it does not have any good reading. Similar explanation is given for the anomaly of (6).

Chomsky's rule of DR as formulated in his paper (1975) does not mention reflexives. He does not state explicitly any relationship between the distribution of regular personal pronouns and reflexive pronouns, nor is it clear how he would formulate his rule of Reflexivization in detail. It is, however, clear that he assumes base generated reflexives (Chomsky 1975:33). Furthermore, he assumes at one point that "reflexivization is free throughout" (Chomsky 1975:32), without explaining in any detail what that means.[3] In the following I am going to assume a formulation of a rule of DR like the one given above, without any relation to Reflexivization. Even though this may not be what Chomsky (1975) has in mind, we can nevertheless use it as a strawman to show what implications such a rule would have, namely that it will lead to the loss of interesting cross-linguistic generalizations, if we assume that comparable phenomena in other languages are handled by a rule of this sort too.

1.1 A difference between English and the Nordic languages

In this section we will look at some data from Icelandic, Danish, and Swedish, and we will discover certain differences between these languages on one hand and English on the other. These differences cannot be explained by assuming a rule of DR as formulated above for English, although there is a clear and simple generalization involved.

First, corresponding to sentences (2)-(4) above we have the following Icelandic, Danish, and Swedish sentences, respectively:

(2')a *Jón$_1$ hatar hann$_1$ (Icelandic 'John$_1$ hates him$_1$')
b *Jens$_1$ hader ham$_1$ (Danish)
c *Jan$_1$ hatar honom$_1$ (Swedish)

(3')a *Mennirnir$_1$ hata þá$_1$ ('The men$_1$ hate them$_1$')

b *Mændene$_1$ hader dem$_1$

c *Männen$_1$ hatar dom$_1$

(4')a *Hann$_1$ hatar hann$_1$ ('He$_1$ hates him$_1$')

b *Han$_1$ hader ham$_1$

c *Han$_1$ hatar honom$_1$

Considering these facts one might want to claim that there is a rule of DR in Icelandic, Danish, and Swedish which works the same way as in English. But now consider the Nordic sentences corresponding to our English sentences (5)-(6) above:

(5')a Eg$_1$ hata mig$_1$ ('I$_1$ hate me$_1$')

b Jeg$_1$ hader mig$_1$

c Jag$_1$ hatar mig$_1$

(6')a Þú$_1$ hatar þig$_1$ ('You$_1$ hate you$_1$')

b Du$_1$ hader dig$_1$

c Du$_1$ hatar dig$_1$

These sentences are perfectly normal in the Nordic languages, although the corresponding English sentences are anomalous. Thus the rule of DR apparently cannot apply to 1st and 2nd person pronouns in the Nordic languages, although it does in English.

A conceivable way out for the proponents of DR is simply to say that DR can have language particular restrictions.

Thus it would have to be stated in the grammars of the Nordic languages under consideration that DR only holds for 3rd person pronouns in these languages although it holds for 1st, 2nd, and 3rd person pronouns in English. If we are simply concerned with stating the facts, this is clearly an adequate solution. But if our goal is to explain something, this is obviously inadequate, since we have not even tried to answer the question why this should be the case.

There is, however, a simple generalization. Personal pronouns and reflexive pronouns are in complementary distribution within clauses in all these languages.[4] The reason for the impossibility of coreference between the first NP and the following pronoun in the English sentences (2)-(6) is the fact that in such sentences Reflexivization is obligatory.[5] The same explanation holds for the impossibility of the Nordic sentences (2')-(4'). There, too, Reflexivization is obligatory, so sentences with a 3rd person reflexive pronoun as the second NP are grammatical but not sentences with a regular personal pronoun as the second NP, given the coreference relations indicated. But since there is no reflexive pronoun for 1st and 2nd person in the Nordic languages, Reflexivization cannot apply[6] to (5')-(6'), and, consequently, they are perfect with regular personal pronouns coreferent with the first NP. Assuming a rule of DR totally independent of Reflexivization, either in English only or in all the languages under consideration, will inevitably lead to the loss of this simple generalization. Hence, such a theory will fail to explain both the differences and the similarities observed above between the Nordic languages and English, although it can be constructed so as to state the facts correctly.

1.2 More examples of similar kind

A slightly different set of data can be used for a similar argument against the rule of DR as formulated above. Consider the following sentence:

(7) John$_i$ took his$_i$ car

This sentence is, of course, perfectly grammatical. This means that if there is a rule of DR it does not apply to possessive pronouns in English. Now observe the Nordic equivalents of this sentence:

(7')a *Jón$_i$ tók hans$_i$ bíl
b *Jens$_i$ to hans$_i$ bil
c *Jan$_i$ tog hans$_i$ bil

These sentences are all ungrammatical with the coreference relations indicated. Proponents of DR would then have to say that although DR does not apply to possessive pronouns in English, it does so in the Nordic languages. This way the facts would have been stated correctly as before but no answer would have been given to the question why this should be the case.

The explanation is just as simple as before: The Nordic languages have a special reflexive form of the 3rd person possessive pronoun, and Reflexivization is obligatory in sentences like (7'). Since English, on the other hand, does not have any reflexive possessive pronouns, Reflexivization cannot apply in sentences like (7), and therefore (7) is perfect as it stands with a regular possessive coreferent to the first NP in the sentence.

Finally, since neither English nor the Nordic languages have a reflexive possessive pronoun for 1st and 2nd person, the following are all perfect:

(8) I$_1$ took my$_1$ car

(8')a Ég$_1$ tók minn$_1$ bíl
b Jeg$_1$ tog min$_1$ bil
c Jag$_1$ tog min$_1$ bil

(9) You$_1$ took your$_1$ car

(9')a Þú$_1$ tókst þinn$_1$ bíl
b Du$_1$ tog din$_1$ bil
c Du$_1$ tog din$_1$ bil

To capture these generalizations the theory of pronominal reference has to be able to account explicitly for the complementary distribution of regular pronouns and reflexive pronouns within clauses. I believe that I have shown in this section that a rule of DR formulated completely independently of Reflexivization does not offer any explanation of this fact. This must be considered a serious deficiency of such a rule.

2. Ways to account for the complementary distribution in the simplest cases

2.0 It can be done interpretively and transformationally

We saw above that an interpretive rule of DR as formulated in (1) does not capture the basic generalization about the distribution of pronouns and reflexives just observed. It should be clear that any theory which has independent interpretive rules for personal pronouns on one hand and reflexive pronouns on the other will lose this generalization - i.e. it will make it look like an accident that pronouns and reflexives are in complementary distribution within clauses in several languages, such as English, Icelandic, Danish, and Swedish. This does not, however, mean that no interpretive theory can capture this generalization. Jackendoff (1972) thought of a pretty ingenious way to do exactly this within an interpretive framework. Below I will first show that Jackendoff's theory seems to work rather nicely in simple cases like the ones we discussed in section 1. Then I will sketch a transformational approach which can do the job just as easily.

2.1 How Jackendoff's theory works

Jackendoff's (1972) interpretive rule of Reflexivization has the following basic form (cf. Jackendoff 1972:112 and 136):

10) $NP^1 \quad \alpha\text{coref} \quad \begin{bmatrix} NP^2 \\ \alpha\text{reflex} \end{bmatrix}$

Obligatory (if NP^1 precedes NP^2)

Jackendoff gives quite detailed conditions for the operation of the rule (Jackendoff 1972: 136 and 176), but we need not go into these here. The main point is that in Jackendoff's framework pronouns and reflexives are generated as lexical items "marked for the feature [+pro], but like other noun phrases unmarked for reference. Reflexives, in addition, will be marked with the feature [+refl] ." (Jackendoff 1972: 108).

To understand how a rule like (10) is supposed to work it is necessary to know that Jackendoff assumes a special "table of coreference". If we have a sentence like

(11) John likes $\begin{bmatrix} \text{himself} \\ \text{+refl} \end{bmatrix}$

the interpretive rule of Reflexivization enters in the table of coreference: John +coref himself, since himself is marked [+refl]. α in the rule will therefore get the value + . In the case of

(12) John likes $\begin{bmatrix} \text{him} \\ \text{-refl} \end{bmatrix}$

on the other hand, the Reflexivization rule (10) enters in the table: *John* -coref *him*, since *him* is (presumably) marked [-refl] . In this way Jackendoff's rule accounts for the complementary distribution of pronouns and reflexvies observed in the English sentences (2)-(6) above. In particular, it rules out interpretations like

(11') *John_i likes himself_j

(12') *John_i likes him_i

It should be clear that it is Jackendoff's α-notation which allows him to capture the generalization observed above, namely that pronouns and reflexives (with the same reference) are in complementary distribution within clauses. Because of this crucial role of the α-notation I will henceforth refer to this theory as the α-interpretive theory.

The α-interpretive theory also accounts straightforwardly for the Nordic sentences (2')-(4') above, assuming that the 3rd person personal pronouns in these languages are marked [-refl] as the English 3rd person personal pronouns. To account for Nordic sentences containing 1st and 2nd person pronouns, like (5')-(6') do, the α-interpretive theory could, for instance, say that in languages where there are no 1st and 2nd person reflexive pronouns, the 1st and 2nd person personal pronouns are marked [±refl] . Then the theory could include a convention which said that the α-interpretive rule of Reflexivization could assign coreference to NP^1 and NP^2 in cases where NP^2 was marked [+refl] as in sentences (5')-(6') above. A similar convention could take care of the differences between English sentences like (7), where NP^1 and the possessive pronoun NP^2 can be coreferent, and the Nordic sentences in (7'), where NP^1 and NP^2 cannot be coreferent. Since the English possessive *his* does not have a reflexive conterpart - i.e. there is no reflexive possessive in English - *his* would be marked [+refl] in the lexicon like the Nordic 1st and 2nd person pronouns. Then the convention would allow NP^1 and NP^2 in (7) to be marked coreferent. The Nordic possessives in (7'), on the other hand, would be marked [-refl] in the lexicon, since they have reflexive counterparts in the Nordic languages. Hence the α-interpretive Reflexivization rule would rule out the ungrammatical interpretations shown in (7').

Without going into further detail here it should be clear that the differences between English and the Nordic languages observed in section 1. do not involve serious problems for the α-interpretive theory, and it seems to express the complementary distribution of pronouns and reflexives quite nicely in the simple cases considered so far. It is worth remembering, however, that the obligatoriness of the α-interpretive rule of Reflexivization just discussed is absolutely crucial in this respect. It is easy to see that given sentences like

(13) John likes $\begin{bmatrix}\text{him}\\ \text{-refl}\end{bmatrix}$

(14) John likes $\begin{bmatrix}\text{himself}\\ \text{+refl}\end{bmatrix}$

an optional α-interpretive rule of Reflexivization would not have to apply to them. Hence the rule would not rule out interpretations like

(13') *John$_i$ likes him$_i$

(14') *John$_i$ likes himself$_j$

Only an obligatory rule of Reflexivization will rule out these interpretations. The importance of this will become clearer below.

2.2 How the transformational theory works

Let us now turn to the question how a theory which assumes that coreference is indicated in underlying structure would capture the generalizations under consideration. As mentioned in the Introduction, I will use a fairly standard transformational theory to illustrate this, although nothing hinges on that particular formulation as far as I can see. The only thing that is crucial for the argumentation of this paper is that coreference relations be marked in underlying structure and the rule of Reflexivization be allowed to refer to this marking. The following will serve as a first approximation to a transformational rule of Reflexivization:[7]

$$\begin{array}{llccccccccc} \text{(15)} & \text{SD:} & X & - & NP_1 & - & Y & - & NP_1 & - & Z \\ & & 1 & & 2 & & 3 & & 4 & & 5 \\ & \text{SC:} & 1 & & 2 & & 3 & & \begin{bmatrix} 4 \\ +\text{pro} \\ +\text{refl} \end{bmatrix} & & 5 \end{array}$$

Obligatory

Condition: 2 and 4 are clause mates (i.e. belong to the same clause)[8]

The indices on the NPs are meant to indicate coreference, as in the sentences above, but the important thing to bear in mind is that here they are used to express the basic claim of the transformational theory that NPs are marked for coreference in underlying structure, and that transformations can refer to this marking. Thus the SD of the transformational rule of Reflexivization states that the NPs in question have to be coreferent in order for the rule to be applicable. This is the all-important difference between the transformational theory and the interpretive one.[9] In the interpretive theory NPs are unmarked for coreference in underlying structure, as we have seen.

Now observe that the obligatoriness of the Reflexivization transformation together with the clause mate condition accounts for the complementary distribution of pronouns and reflexives within clauses. Thus the obligatoriness of the Reflexivization rule is crucial again. In this respect it does not matter whether the underlying form for a reflexive is pronominal or nonpronominal. All that is really crucial is that we get personal pronouns only in the cases where our Reflexivization transformation does not apply - i.e. in the "elsewhere" cases. It is very easy to take care of this within a theory that assumes underlying coreference marking. We could, for instance, assume a standard transformational rule of Pronominalization like (16)[10], although it should again be stressed that other theories of Pronominalization are not incompatible with the facts discussed in this paper, as long coreference is marked in underlying structure:[11]

$$\begin{array}{llccccccccc}
(16) & \text{SD:} & X & - & NP_1 & - & Y & - & NP_1 & - & Z \\
 & & 1 & & 2 & & 3 & & 4 & & 5 \\
 & \text{SC:} & 1 & & 2 & & 3 & & \begin{bmatrix} 4 \\ +\text{pro} \end{bmatrix} & & 5
\end{array}$$

Obligatory

This rule would not be subject to the clause mate condition. We would not have to order it with respect to Reflexivization, since all it does is to add the feature [+pro] to the second NP in the SD, a feature also added by our Reflexivization rule. It will, therefore, only produce nonreflexive pronouns in the cases where Reflexivization cannot apply, in particular where the clause mate condition is not met - i.e. in the elsewhere cases. Thus if we end up with [NP +pro] the lexical insertion rules will insert a pronoun, but if what the transformational rules give us is [NP +pro,+refl] , we will have to insert a reflexive. In the case of Nordic 1st and 2nd person pronouns we could again assume that they are marked [±refl] in the lexicon, since they have no reflexive counterparts. Hence they could be inserted under [NP +pro, +refl] . Same would again hold for English possessives.

Thus it seems clear that a transformational theory can express the complementary distribution of pronouns and reflexives just as easily as the α-interpretive theory. So far, then, we have not seen any evidence that would distinguish between the two theories. What I have shown is just that any theory of pronouns and reflexives has to account explicitly for their complementary distribution within clauses. In the simple cases considered so far it is possible to do this either in terms of an α-interpretive theory or a transformational theory.

3. The crucial cases

3.0 What kind of facts to look for

If we want to find evidence that would distinguish between the two theories, we must know where to look. In other words, in what way do the two theories make different predictions?

The sentences we have been considering so far have all been simplex sentences with only one NP preceding the pronominal form. Thus they can be described as follows:

$$(17)\quad \begin{array}{ccccccccc} X & - & NP & - & Y & - & \left\{\begin{matrix} PP \\ RP \end{matrix}\right\} & - & Z \\ 1 & & 2 & & 3 & & 4 & & 5 \end{array}$$

where PP stands for personal pronoun, RP for reflexive pronoun, and none of the variables contains an NP. We observed that there was a complementary distribution between pronouns and reflexives in these cases in the sense that we could not get coreference between the PP and the preceding NP but only between the RP and the NP. This can be symbolized in the following way:

$$(17')\quad X - NP_i - Y - \left\{\begin{matrix} {}^{*}PP_i \\ RP_i \end{matrix}\right\} - Z$$

We saw already that this could be accounted for by having an obligatory rule of Reflexivization, either under an α-interpretive theory like Jackendoff's, which assumes that coreference/noncoreference marking is assigned interpretively, or under a theory which assumes that coreference is indicated in underlying structure.

Now let us consider slightly more complicated sentences - i.e. of the following type:

$$\begin{array}{lccccccccccccc} (18) & X & - & NP & - & Y & - & NP & - & Z & - & \left\{\begin{matrix}PP\\ RP\end{matrix}\right\} & - & W \\ & 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

Here we have two NPs preceding the pronominal forms. Theoretically there are several possibilities with respect to coreference relations between these NPs and the following pronominal forms. These possibilities include:

$$\begin{array}{llccccccccccccc} (18')a & & X & - & NP_i & - & Y & - & NP_j & - & Z & - & \left\{\begin{matrix}{}^{*}PP_j\\ RP_j\end{matrix}\right\} & - & W \\ & b & X & - & NP_i & - & Y & - & NP_j & - & Z & - & \left\{\begin{matrix}{}^{*}PP_i\\ RP_i\end{matrix}\right\} & - & W \\ & c & X & - & NP_i & - & Y & - & NP_j & - & Z & - & \left\{\begin{matrix}PP_j\\ RP_j\end{matrix}\right\} & - & W \\ & d & X & - & NP_i & - & Y & - & NP_j & - & Z & - & \left\{\begin{matrix}PP_i\\ RP_i\end{matrix}\right\} & - & W \\ & & 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

(18')a means that pronouns and reflexives are in complementary distribution with respect to 4 (i.e. NP_j) in the sense that a reflexive pronoun can be coreferent with 4 but a personal pronoun cannot. We will refer to this situation by saying that Reflexivization is obligatory with respect to 4.

(18')b means that pronouns and reflexives are in complementary distribution with respect to 2 (i.e. NP_i) in the sense that a reflexive can be coreferent to 2 but a personal pronoun cannot. We will refer to this situation by saying that Reflexivization is obligatory with respect to 2.

(18″)c means that pronouns and reflexives are not in complementary distribution with respect to 4 in the sense described above, since we could either have a personal pronoun coreferent with 4 or a reflexive pronoun coreferent with 4. Hence we will say that Reflexivization is optional with respect to 4 in (18″)c.

Similarly, the situation described by (18″)d means that Reflexivization is optional with respect to 2, since we can either have a personal pronoun or a reflexive pronoun coreferent with 2.

A priori one might think that the following combinations of coreference relations described in (18″) could be possible:

(19)1. (18″)a and (18″)b - i.e. Reflexivization is obligatory with respect to both 2 and 4.

2. (18″)b and (18″)c - i.e. Reflexivization is obligatory with respect to 2 but optional with respect to 4.

3. (18″)a and (18″)d - i.e. Reflexivization is obligatory with respect to 4 but optional with respect to 2.

4. (18″)c and (18″)d - i.e. Reflexivization is optional with respect to both 2 and 4.

Now the crucial point is that the two theories of Reflexivization we have been considering make different predictions about these combinations. It is very important to understand this so let us go through the possibilities in some detail.

As explained above, (19)1. means that Reflexivization is obligatory with respect to both 2 and 4 in a structure like (18). Thus if the pronominal form in a sentence like (18) is a nonreflexive one, it must be noncoreferent with 2 and also noncoreferent with 4. This means that an α-interpretive rule of Reflexivization has to operate obligatorily both on the pairs 2 and 6, and 4 and 6 to account for this. Given a sentence like

$$(20)\quad \begin{array}{ccccccccccccc} X & - & NP & - & Y & - & NP & - & Z & - & \begin{bmatrix} NP \\ -refl \end{bmatrix} & - & W \\ 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

it obligatorily marks 2 and 6 noncoreferent, and it also marks 4 and 6 noncoreferent. Now recall that the basic property of the α-interpretive Reflexivization rule is the fact that it holds both for [+refl] and [-refl] NPs. This is the property which made it possible for the α-interpretive theory to capture the generalization discussed in sections 1. and 2. in simple cases. This property entails, however, that if the rule has to operate on the pair 4 and 6 as well as on the pair 2 and 6 in sentence (20), where 6 is marked [-refl], it will also operate on the pairs 4 and 6 as well as 2 and 6 in sentence (21), where 6 is marked [+refl] , since (21) has exactly the same structure as (20):

$$(21)\quad \begin{array}{ccccccccccccc} X & - & NP & - & Y & - & NP & - & Z & - & \begin{bmatrix} NP \\ +refl \end{bmatrix} & - & W \\ 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

This means that in the case of (21) the α-interpretive Reflexivization rule will mark 4 and 6 coreferent and it will also mark 2 and 6 coreferent, which has, of course, the effect that 2, 4, and 6 will all be interpreted as coreferent. Thus the α-interpretive theory actually predicts that the only way we could get the combination of coreference relations described by (19)1. - i.e. Reflexivization obligatory both with respect to 2 and 4 in a structure like (18) - would be if 2 and 4 are coreferent.

A theory which assumes base generated coreference marking is crucially different here. Under such a theory (19)1. simply means the following: If the base generated coreference relations are as in (22)

$$(22)\quad \begin{array}{ccccccccccccc} X & - & NP_i & - & Y & - & NP_j & - & Z & - & NP_j & - & W \\ 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

Reflexivization obligatorily applies since 4 and 6 are coreferent. That rules out the possibility of a personal pronoun as 6, giving the pattern of (18'')a. If the base generated coreference relations are as in (23)

$$(23)\quad \begin{array}{ccccccccccccc} X & - & NP_i & - & Y & - & NP_j & - & Z & - & NP_i & - & W \\ 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

Reflexivization also applies obligatorily, since 2 and 6 are coreferent, and that rules out the possibility of a personal pronoun as 6, giving the pattern of (18")b. The two patterns, (18")a and (18")b, are thus perfectly compatible and easily accounted for without assuming that 2 and 4 must be coreferent (although that possibility is not ruled out). This constitutes a clear empirical difference between the two theories and suggests where we might look for crucial evidence to decide between them.

Secondly, the state of affairs described by (19)2. would mean that in a sentence like (18) a nonreflexive pronoun as 6 could not be coreferent with 2 but it could be coreferent with 4. To account for this by an $\mathcal{L}$-interpretive rule of Reflexivization we would have to let it obligatorily mark 2 and a [-refl] NP as 6 noncoreferent, and, conversely, it would mark 2 and a [+refl] NP as 6 obligatorily coreferent. But since 4 can also serve as an antecedent for a reflexive pronoun in position 6, we would have to allow for an optional coreference marking of 4 and 6. In other words, given a sentence like (24)

$$(24)\quad \begin{array}{ccccccccccccc} X & - & NP & - & Y & - & NP & - & Z & - & \begin{bmatrix} NP \\ +refl \end{bmatrix} & - & W \\ 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

2 and 6 would obligatorily be marked coreferent. An optional coreference marking between 4 and 6 would then have to be made in addition to the obligatory coreference marking between 2 and 6 - i.e. 4 and 6 could not be coreferent unless 2 and 6 were coreferent too. Hence the $\mathcal{S}$-interpretive theory predicts that 4 and 6 cannot be coreferent unless 2, 4, and 6 are all coreferent.

The theory assuming base generated coreference marking is crucially different here again. Under that theory, the statement Reflexivization is obligatory with respect to 2 means, as we have already seen, that given underlying coreference relations like

$$(25)\quad \begin{array}{ccccccccccccc} X & - & NP_i & - & Y & - & NP_j & - & Z & - & NP_i & - & W \\ 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

Reflexivization has to apply, and thus the possibility of a personal pronoun as 6, coreferent with 2, is ruled out, giving the pattern of (18")b. The optionality of Reflexivization with respect to 4 means that if the base generated coreference relations are like

$$(26)\quad \begin{array}{ccccccccccccc} X & - & NP_i & - & Y & - & NP_j & - & Z & - & NP_j & - & W \\ 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

Reflexivization only optionally applies and thus does not rule out the possibility of a personal pronoun as 6, coreferent with 4, yielding the pattern of (18")c. Thus it is clear that the state of affairs described by (19)2. can easily be accounted for by this theory without claiming that 2, 4, and 6 are necessarily all coreferent (although again they could be, if that was the base generated coreference marking). Hence the two theories make different predictions again, and it should be possible to test which makes the correct ones.

The situation described by (19)3. is analogous to (19)2., the only difference being that the roles of 2 and 4 are reversed with respect to the obligatoriness of Reflexivization. Hence the difference between the predictions made by the two theories will be of the same nature.

Examples of the (19)4. type, on the other hand, would not decide between the two theories. (19)4. just means that Reflexivization is optional with respect to both antecedents, and that could easily be expressed by either theory without any differing side effects. We are, therefore, not interested in examples of this sort.

Note, however, that the α-interpretive theory actually predicts that the only way we could get ambiguous reference of reflexive pronouns would be if the Reflexive rule was entirely optional as in (19)4. - i.e. it could pick either of the two possible antecedents and mark it coreferent with the reflexive pronoun and would not obligatorily have to pick one of them. We will see below that this prediction is not shared by the transformational theory.

At this point the reader should have a rough idea of what kinds of examples would distinguish between the two theories we have been considering. I have argued that data of the sort described by (19)1.-(19)3. above should do this. In sections 3.1 to 3.3 below I will present four sets of data of this type, which constitute a compelling argument against the interpretive theory and for the theory of base generated coreference marking on the basis of the crucial difference between these just outlined.

3.1 Ambiguous reference of reflexives within simplex sentences

3.1.0 In this section I will present examples from English and Icelandic where we have two potential antecedents for a reflexive form within the same simplex sentence. There is nevertheless complementary distribution of pronouns and reflexives in these sentences of the types described by (19)1. and (19)2. above. The two possible antecedents do not have to be coreferent when the pronominal form is reflexive. Hence it is argued that these examples constitute counterevidence to the interpretive theory and are at the same time arguments for the transformational theory for the reasons outlined in 3.0.

3.1.1 The English examples

3.1.1.1 How the α-interpretive theory fails

First, it should be made clear that examples of the sort we are looking for exist in English and have been known for a long time, although they have not, to my knowledge, been used to construct an argument of this kind before. I am referring to sentences like (27):

(27) John$_i$ told Bill$_j$ about $\left\{\begin{matrix} \text{himself}_i \\ \text{himself}_j \end{matrix}\right\}$

Jackendoff mentions the existence of such sentences only briefly, and this is all he has to say about them (Jackendoff 1972:113): "One con on the application of... [the Reflexivization rule] must be that if two possible environments for interpretation of a reflexive crop up at one, either reading is possible." Jackendoff is not very specific here and makes it look like this is no problem for his theory. But what does it mean in his framework that "either reading is possible"? It must mean that given a sentence like the following

(28) John told Bill about himself

$$\text{SD: } \begin{array}{ccccccccccccc} X & - & NP & - & Y & - & NP & - & Z & - & \begin{bmatrix} NP \\ +refl \end{bmatrix} & - & W \\ 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

the α-interpretive rule of Reflexivization must be allowed to pick either 2 or 4 and mark it coreferent with 6 in the table of coreference. At first sight it might seem that this is not a real problem for the α-interpretive theory. One could imagine that the α-interpretive Reflexivization rule just said something like the following: "Scan the whole clause for a possible antecedent for the [αrefl] NP. If there are two (or more) possible antecedents, pick one and mark it αcoreferent with the [αrefl] NP." But a closer look reveals that the English facts are really of the (19)1. type, as can be seen from the following:

(29) John_i told Bill_j about $\left\{\begin{matrix} {}^{*}\text{him}_i \\ {}^{*}\text{him}_j \end{matrix}\right\}$

This means that Reflexivization is obligatory with respect to both *John* (i.e. the NP corresponding to 2 in our schema (18) above) and *Bill* (the NP corresponding to 4 in (18)). Thus if we have a sentence like (30):

(30) John told Bill about him

$$\text{SD: } \begin{array}{ccccccccccccc} X & - & NP & - & Y & - & NP & - & Z & - & \begin{bmatrix} NP \\ \text{-refl} \end{bmatrix} & - & W \\ 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

the α-interpretive rule of Reflexivization has to operate on the pair 4 and 6 and mark them -coreferent, and it also has to operate on the pair 2 and 6 and assign noncoreference to it to rule out the ungrammatical interpretations shown in (29). That means that Reflexivization is obligatory with respect to both 2 and 4, which means, in turn, that it will mark 2, 4, and 6 all coreferent in a sentence like (31):

(31) John told Bill about himself

$$\begin{array}{lccccccccccccc} \text{SD:} & X & - & NP & - & Y & - & NP & - & Z & - & \begin{bmatrix} NP \\ +\text{refl} \end{bmatrix} & - & W \\ & 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

That is, however, a rather embarrassing consequence. This can, of course, be avoided by allowing the α-interpretive Reflexivization rule to select either 2 or 4 as antecedent for 6 in such structures. But if it selects, for instance, 4 as an antecedent for 6 in (30) above, it does not any longer say anything about the coreference relationship between 2 and 6. Hence it does not rule out an interpretation like

(32) *John$_i$ told Bill$_j$ about him$_i$

Conversely, if the rule selects 2 as an antecedent for 6 in (30), it does not any longer rule out the following interpretation:

(33) *John$_i$ told Bill$_j$ about him$_j$

These examples clearly show that the α-interpretive theory of Reflexivization cannot account for ambiguous reference of reflexives in sentences like (27) and at the same time express the complementary distribution of pronouns and reflexives of the (19)1. type, which the comparison of English sentences like (27) and (29) reveals.[12]

3.1.1.2 How the transformational theory works

The important generalizations discussed in 3.1.1.1 which could not be captured by the α-interpretive theory are quite easy to capture under a transformational theory. Ambiguous sentences like (27) simply have two different sources, which can be described like this:

(34)a $X - NP_i - Y - NP_j - Z - NP_i - W$

b $X - NP_i - Y - NP_j - Z - NP_j - W$

$\quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7$

From (34)a we derive (34')a by Reflexivization:

(34')a John$_i$ told Bill$_j$ about himself$_i$

whereas (34)b is the source of (34')b:

(34')b John$_i$ told Bill$_j$ about himself$_j$

Then we can rule out (32) and (33) by saying that Reflexivization is obligatory, both with respect to 2 (cf. (34)a) and 4 (cf. (34)b). Hence the transformational theory is clearly superior here.

3.1.2 The Icelandic examples

3.1.2.1 How the α-interpretive theory fails

In Icelandic we can find examples which look very much like the English example in (27):

(35) Jón$_i$ sýndi Haraldi$_j$ föt á $\left\{\begin{matrix}\text{sig}_i\\ \text{sig}_j\end{matrix}\right\}$

John$_i$ showed Harold$_j$ clothes for $\left\{\begin{matrix}\text{himself}_i\\ \text{himself}_j\end{matrix}\right\}$

or with the possessive reflexive:

(36) Jón$_i$ rétti Haraldi$_j$ $\left\{\begin{matrix}\text{sín}_i\\ \text{sín}_j\end{matrix}\right\}$ föt

John$_i$ handed Harold$_j$ $\left\{\begin{matrix}\text{himself's}_i\\ \text{himself's}_j\end{matrix}\right\}$ clothes

There is an important difference, however, as shown by the following sentences:

(35') Jón$_i$ sýndi Haraldi$_j$ föt á $\left\{\begin{matrix}{}^{*}\text{hann}_i\\ \text{hann}_j\end{matrix}\right\}$

John$_i$ showed Harold$_j$ clothes for $\left\{\begin{matrix}{}^{*}\text{him}_i\\ \text{him}_j\end{matrix}\right\}$ [13]

(36') Jón$_i$ rétti Haraldi$_j$ $\left\{\begin{matrix}{}^{*}\text{hans}_i\\ \text{hans}_j\end{matrix}\right\}$ föt

John$_i$ handed Harold$_j$ $\left\{\begin{matrix}{}^{*}\text{his}_i\\ \text{his}_j\end{matrix}\right\}$ clothes

Comparison of (35) and (35'), and of (36) and (36') shows that in Icelandic sentences of this type pronouns and reflexives are in complementary distribution with respect to the subject (Jón) but not with respect to the object (Haraldi). This means that in Icelandic we have situation (19)2.: Reflexivization is obligatory if the antecedent corresponds to 2 in schema (18) (i.e. is the subject of the sentence), but it is optional if the antecedent corresponds to 4 in schema (18) (i.e. is the object in our sentences).

We have already seen that such a situation is likely to involve problems for the α-interpretative theory, but let us go through the arguments step by step:

Given a sentence like the following:

(37) Jón sýndi Haraldi föt á hann
John showed Harold clothes for him

$$\begin{array}{llllllllllllll} \text{SD:} & X & - & NP & - & Y & - & NP & - & Z & - & \begin{bmatrix} NP \\ -\text{refl} \end{bmatrix} & - & W \\ & 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

it is clear that the α-interpretive Reflexivization rule has to operate on the pair 2 and 6, since Reflexivization is obligatory with respect to 2. Hence the rule will obligatorily mark 2 and 6 -coreferent in (37). This correctly predicts that the following interpretation is ungrammatical:

(38) *Jón$_i$ sýndi Haraldi$_j$ föt á hann$_i$
John$_i$ showed Harold$_j$ clothes for him$_i$

Now recall again that the basic property of the α-interpretive theory is the fact that it operates both on [+refl] and [-refl] NPs. We have already seen that in order to rule out the ungrammatical (38) in Icelandic the α-interpretive Reflexivization rule has to operate obligatorily on the pair 2 and 6 in a SD of the form given in (37) (or (18)). This means, in turn, that given a sentence like

(39) Jón sýndi Haraldi föt á sig
John showed Harold clothes for himself

SD: X - NP - Y - NP - Z - $\begin{bmatrix} \text{NP} \\ \text{+refl} \end{bmatrix}$ - W
1 2 3 4 5 6 7

the α-interpretive Reflexivization rule will operate obligatorily on 2 and 6 again, and in this case it will mark them +coref . Now recall that 4 can also serve as an antecedent for 6 in sentences like (39), although Reflexivization is not obligatory with respect to 4. Since Reflexivization is obligatory with respect to 2 it will, of course, always apply. Thus an optional Reflexivization operating on 4 and 6 in a sentence like (39) will mark 4 and 6 coreferent in addition to the obligatory coreference marking of 2 and 6. Hence the α-interpretive theory predicts that 2 and 6 will always be coreferent in sentences like (39), and, consequently, that 4 and 6 can only be coreferent if 2, 4, and 6 are all coreferent. But that is clearly the wrong prediction. To avoid it the α-interpretive theory would actually have to give up the claim that Reflexivization is obligatory with respect to 2 in sentences with two possible antecedents like (37) and

(39). Then it would, however, no longer rule out ungrammatical interpretations like (38), since the α-interpretive Reflexivization rule would not have to mark 2 and 6 non-coreferent. Hence a generalization would be lost. The same argumentation holds for the possessive reflexive too.

We must, therefore, conclude, that the α-interpretive theory cannot capture the observed generalization about the distribution of pronouns and reflexives in Icelandic sentences of the type discussed in this section.

3.1.2.2 How the transformational theory works

Under the transformational theory, sentences like (35) and (36) would have two different sources each, which can be described like this:

(40)a $X - NP_i - Y - NP_j - Z - NP_i - W$

b $\underset{1}{X} - \underset{2}{NP_i} - \underset{3}{Y} - \underset{4}{NP_j} - \underset{5}{Z} - \underset{6}{NP_j} - \underset{7}{W}$

To account for the differences observed in (35') and (36') we would just say that Reflexivization from 2 to 6 (i.e. from a subject trigger) is obligatory whereas Reflexivization from 4 to 6 (i.e. from an object trigger) is optional. That rules out the possibility of having a regular personal pronoun as 6 coreferent with the subject of the sentence as in the ungrammatical (38). At the same time it expresses the fact that pronouns and reflexives are not in complementary distribution with respect to the object in sentences of this type - i.e. we have both (41)a, where Reflexivization has (optionally) applied, and (41)b, where Reflexivization has not applied:

(41)a Jón$_i$ sýndi Haraldi$_j$ föt á sig$_j$
John$_i$ showed Harold$_j$ clothes for himself$_j$

b Jón$_i$ sýndi Haraldi$_j$ föt á hann$_j$
John$_i$ showed Harold$_j$ clothes for him$_j$

Therefore we will have to conclude that the transformational theory can easily account for the Icelandic facts discussed in this section whereas the α-interpretive theory cannot.

3.2 Ambiguous reference of reflexives in infinitival clauses

3.2.0 Reflexivization in Icelandic can "go down into" infinitival clauses. This has the effect that infinitival clauses containing a reflexive form are sometimes ambiguous - i.e. the reflexive form can either be interpreted as coreferent with the (cyclic) subject of the infinitival clause or coreferent with the subject of the matrix clause. In the following I will show that these facts pose a serious problem for the α-interpretive theory of Reflexivization but are easily accounted for by the transformational theory.

3.2.1 How the α-interpretive theory fails

First consider the following:

(42) Eg tel Harald$_j$ hafa rakað $\left\{\begin{matrix} *\text{hann}_j \\ \text{sig}_j \end{matrix}\right\}$

I believe Harold$_j$ to have shaved $\left\{\begin{matrix} *\text{him}_j \\ \text{himself}_j \end{matrix}\right\}$ [13]

I will refer to sentences like (42) as the "raised" version of sentences like (43):

(43) Eg tel $[_S$að Haraldur$_j$ hafi rakað $\left\{\begin{matrix} *\text{hann}_j \\ \text{sig}_j \end{matrix}\right\}]$

I believe that Harold$_j$ has shaved $\left\{\begin{matrix} *\text{him}_j \\ \text{himself}_j \end{matrix}\right\}$

Whether there actually is a rule of subject to object raising (SOR) in Icelandic does not really matter here. Either way Haraldur in (42) will be the subject of the infinitival clause at some stage. If there is a rule of SOR in Icelandic, Haraldur is raised into object position in the matrix, and then we can assume that Reflexivization is cyclic (like Jackendoff (1972), for instance, does in the case of English). But if there is no rule of SOR in Icelandic, Haraldur will always be the subject of the infinitival clause.

The facts exemplified by (42) show once more that Reflexivization is obligatory within clauses (i.e. within the infinitival clause in (42)). For reasons that will become apparent below I will henceforth refer to clause internal

Reflexivization as CBR (clause bounded Reflexivization).

It should be clear that sentences like (42) do not involve any new problems for the theories we have been considering. There is only one possible antecedent in the simple infinitival clause, obligatory CBR applies, and the possibility of a regular personal pronoun coreferent with the subject of the infinitival clause is correctly ruled out. Sentences of the following type do, however, involve problems for the α-interpretive theory:

(44) Jón$_i$ telur Harald$_j$ hafa rakað $\left\{\begin{matrix} \text{sig}_i \\ \text{sig}_j \end{matrix}\right\}$

John$_i$ believes Harold$_j$ to have shaved $\left\{\begin{matrix} \text{himself}_i \\ \text{himself}_j \end{matrix}\right\}$

Here again we have a raised structure, but this time there are two possible antecedents for the reflexive pronoun in the infinitival clause: the subject of the infinitival clause and the subject of the matrix clause. In (42) we saw that CBR is obligatory within infinitival clauses. Now observe the following:

(45) Jón$_i$ telur Harald$_j$ hafa rakað $\left\{\begin{matrix} {}^*\text{hann}_i \\ \text{sig}_i \end{matrix}\right\}$

John$_i$ believes Harold$_j$ to have shaved $\left\{\begin{matrix} {}^*\text{him}_i \\ \text{himself}_i \end{matrix}\right\}$

This means that Reflexivization is also obligatory "into" infinitival clauses in raised structures.[14] Thus we have here a second instance of the (19)1. type. Is it possible for the α-interpretive theory to account for the facts this time?

Let us take a sentence like the following:

(46) Jón telur Harald hafa rakað sig
John believes Harold to have shaved himself

$$\begin{array}{lccccccccccccc} \text{SD:} & X & - & NP & - & Y & - & NP & - & Z & - & \begin{bmatrix} NP \\ +\text{refl} \end{bmatrix} & - & W \\ & 1 & & 2 & & 3 & & 4 & & 5 & & 6 & & 7 \end{array}$$

If we assume that Reflexivization is cyclic, it means that it first gets a chance to apply within the lower (i.e. the infinitival) clause. There we have only one possible antecedent so the obligatory rule of CBR enters in the table of coreference: *Harald* +coref *sig*. When we get to the higher cycle, Reflexivization can apply again, and this time it does so from the subject of the matrix into the infinitival clause. Moreover, we have already seen that this type of Reflexivization is obligatory too. Therefore the α-interpretive Reflexivization rule must enter in the table: *Jón* +coref *sig*. This, however, has the effect that *Jón*, *Haraldur*, and *sig* will all be interpreted as coreferent. This is the same effect as before, and the prediction is just as wrong as before. The only difference between this example and the English example discussed in 3.1.1 is that in this case the two potential antecedents do not crop up at once but rather one by one, assuming that Reflexivization is cyclic. The only way to prevent the α-interpretive Reflexivization rule from marking all three NPs coreferent in sentences like (46) is to give up the claim that Reflexivization is obligatory in these cases. But if we, for instance, say that CBR is not obligatory when the clause in question is embedded under a matrix which contains a subject which is a possible antecedent for a reflexive form in this clause, we will not only have introduced a suspicious condition but more importantly we will have made it impossible for the α-interpretive Reflexivization rule to rule out sentences like (47) in which the CBR has not marked the downstairs Harald and hann -coreferent:

(47) *Jón$_i$ telur Harald$_j$ hafa rakað hann$_j$

John$_i$ believes Harold$_j$ to have shaved him$_j$

NP $\begin{bmatrix} \text{NP} \\ \text{-refl} \end{bmatrix}$

Similarly, by making the Reflexivization into the infinitival clause optional we can no longer account for the grammatical pattern shown in (45).

Giving up the assumption that Reflexivization is cyclic would not help either. The effect would simply be that the two potential antecedents for the pronominal form would not crop up one by one - i.e. first downstairs and then upstairs - as they do if the rule is cyclic, but rather simultaneously as within a simple clause. We have already seen in 3.1.1.1 what sort of problems that involves for the α-interpretive theory. In short, I do not see any way out for the α-interpretive theory here either.

3.2.2 How the transformational theory works

As before, the facts are quite straightforwardly accounted for by the transformational approach. The ambiguous (44) has simply two different sources, namely the following:

(48)a $X - NP_i - Y - NP_j - Z - NP_j - W$

b $X - NP_i - Y - NP_j - Z - NP_i - W$

$1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7$

(48)a is a description of the deep structure underlying (48')a, and (48)b is a description of the structure underlying (48')b:

(48')a Jón$_i$ telur Harald$_j$ hafa rakað sig$_j$
John$_i$ believes Harold$_j$ to have shaved himself$_j$

b Jón$_i$ tleur Harald$_j$ hafa rakað sig$_i$

Since the CBR is obligatory, we have to apply it in the case of (48)a, where 4 and 6 are coreferent and clause mates. This accounts for the impossibility of having a regular personal pronoun downstairs coreferent to Harald as in (47). To account for the grammaticality pattern exemplified by (45) - i.e. the obligatoriness of Reflexivization into infinitival clauses in raised structures - the transformational theory would simply say that given a structure like (48)b, where 2 and 6 are coreferent and 2 is outside an infinitival clause but 6 is inside it, Reflexivization obligatorily applies, ruling out the possibility of a regular personal pronoun in the place of 6 with 2 as an antecedent.[15]

We must, therefore, conclude that the transformational theory is superior in this case too.

3.3 Ambiguous reference of reflexives in subordinate that-clauses

3.3.0 An argument against the α-interpretive theory quite similar to the one in 3.2 can be constructed on the basis of the following sort of facts: In Icelandic, Reflexivization can go down into subordinate that-clauses. This non-clause bounded Reflexivization rule (henceforth NCBR) is subject to interesting conditions, which need not concern us here (for discussion see Thráinsson, forthcoming). The main point is that this can produce sentences with ambiguous reference of a reflexive pronoun in the that-clause. Thus these cases are quite similar to the ones discussed in 3.2, where we had reflexives in infinitival clauses. The difference is that the NCBR which operates into that-clauses is optional whereas Reflexivization obligatorily goes into infinitival clauses of the sort discussed above. In other words, we have a situation of the (19)3. type instead of (19)1. In other respects the facts are very similar and do not require a great deal of additional discussion.

3.3.1 How the α-interpretive theory fails

To remind us that CBR is obligatory we can consider sentences like the following:

(49) Ég tel að Haraldur$_j$ hafi rakað $\left\{\begin{matrix} {*}\text{hann}_j \\ \text{sig}_j \end{matrix}\right\}$

I believe that Harold$_j$ has shaved $\left\{\begin{matrix} {*}\text{him}_j \\ \text{himself}_j \end{matrix}\right\}^{13}$

As noted before, this is the "unraised" version of (42). An obligatory cyclic interpretive rule of Reflexivization can account for these facts, as noted above. The reflexive *sig* would obligatorily be marked coreferent with *Haraldur*, whereas the nonreflexive *hann* would obligatorily be marked noncoreferent with *Haraldur*. This would give us the pattern shown in (49). But as before, the problems arise when we discover facts like the following:

(50) Jón$_i$ telur að Haraldur$_j$ hafi rakað $\left\{\begin{matrix} \text{sig}_i \\ \text{sig}_j \end{matrix}\right\}$

John$_i$ believes that Harold$_j$ has shaved $\left\{\begin{matrix} \text{himself}_i \\ \text{himself}_j \end{matrix}\right\}$

The problems are of the same nature as the problems discussed above in connection with sentences like (44). The only difference is that the NCBR is optional, so we get the following pattern:

(51) Jón$_i$ telur að Haraldur$_j$ hafi rakað $\left\{\begin{array}{l}\text{hann}_i\\ \text{sig}_i\end{array}\right\}$

John$_i$ believes that Harold$_j$ has shaved $\left\{\begin{array}{l}\text{him}_i\\ \text{himself}_i\end{array}\right\}$

We have already seen that CBR is obligatory (cf. (49)). That means that given a sentence like

(52) Jón telur $[_S$að Haraldur hafi rakað sig$]$
John believes that Harold has shaved himself

SD:	X	-	NP	-	Y	-	NP	-	Z	-	$\begin{bmatrix}\text{NP}\\ \text{+refl}\end{bmatrix}$	-	W
	1		2		3		4		5		6		7

the obligatory CBR will mark 4 and 6 coreferent on the lower cycle, if CBR is cyclic. Since 2 (i.e. *Jón*) can also serve as an antecedent for a downstairs reflexive, we need an optional NCBR which will assign coreference to 2 and 6. But since the obligatory CBR will always apply, an additional application of the NCBR will have the effect that 2, 4, and 6 will all be marked coreferent. That is an undesirable result, as before. The only way to avoid that is to make the CBR optional by some kind of a convention. That means, however, that given a a sentence like (53)

(53) Jón telur [$_S$að Haraldur hafi rakað hann]
John believes that Harold has shaved him

SD: X - NP - Y - NP - Z - $\begin{bmatrix} \text{NP} \\ \text{-refl} \end{bmatrix}$ - W
1 2 3 4 5 6 7

an optional α-interpretive CBR will no longer have to mark 4 and 6 noncoreferent. Hence it will not rule out interpretations like (54)

(54) *Jón$_i$ telur að Haraldur$_j$ hafi rakað hann$_j$
John$_i$ believes that Harold$_j$ has shaved him$_j$

Such an interpretation can only be ruled out by the α-interpretive CBR if it is obligatory.

It should be clear that assuming that Reflexvization is not cyclic will not help in this case either. Then the two possible antecedents for the [αrefl] NP crop up at the same time instead of one by one. The situation will still be of the (19)3. type and just as impossible to account for under the α-interpretive theory as the (19)2. case discussed in 3.1.2, for instance. Hence we must conclude that the α-interpretive theory has failed once more.

3.3.2 How the transformational theory works

As before, the transformational theory accounts for the facts straightforwardly. Ambiguous sentences like (50) have two different deep structures like other ambiguous sentences we have been discussing:

(55)a X - NP$_i$ - Y - NP$_j$ - Z - NP$_j$ - W

b X - NP$_i$ - Y - NP$_j$ - Z - NP$_i$ - W
1 2 3 4 5 6 7

(55)a is the description of the deep structure for (55')a:

(55')a Jón$_i$ telur að Haraldur$_j$ hafi rakað sig$_j$
John$_i$ believes that Harold$_j$ has shaved himself$_j$

In this case 4 has obligatorily triggered Reflexivization of 6, since they are coreferent and clause mates. The obligatoriness of the CBR automatically accounts for the observed ungrammaticality of (54) above. (55)b, on the other hand, is a description of the structure underlying (55')b:

(55')b Jón$_i$ telur að Haraldur$_j$ hafi rakað sig$_i$
John$_i$ believes that Harold$_j$ has shaved himself$_i$

In this case, NCBR optionally turns 6 into a reflexive under coreference with 2, which is not its clause mate. The optionality of NCBR accounts for the grammaticality of (56):

(56) Jón$_i$ telur að Haraldur$_j$ hafi rakað hann$_i$
John$_i$ believes that Harold$_j$ has shaved him$_i$

Once again, therefore, the transformational theory comes out ahead. This should not come as a surprise any more, since in the previous sections evidence has been piling up against the α-interpretive theory and for the transformational theory. As a matter of fact, it is possible to come up with even more complex examples of Reflexivization in Icelandic and they all point in the same direction: The α-interpretive theory makes the wrong predictions and cannot account for the facts without loss of generalizations. Observe, for instance, that we can have more than two potential antecedents for a reflexive form:

(57) Jón$_i$ segir að Haraldur$_j$ telji að Billi$_k$ vilji
John$_i$ says that Harold$_j$ believes that Bill$_k$ wants

að María$_l$ raki sig$_{i/j/k/l}$
that Mary$_l$ shaves himself$_{i/j/k}$/herself$_l$

Here only the "lowest" Reflexivization - i.e. the CBR - is obligatory in the sense of our previous discussion. Hence a presonal pronoun instead of the reflexive pronoun could not refer to María but it could refer to the higher subjects, since the NCBR is optional. Is should be clear that examples of this sort only involve increased complications for the α-interpretive theory but no additional problems for the transformational theory.

4. Conclusion

The data discussed in this paper constitutes clear evidence against Jackendoff's α-interpretive theory of pronouns and reflexives. The α-interpretive theory cannot capture the basic generalizations about the distribution of pronouns and reflexives. It should be remembered, however, that the reason the α-interpretive theory was selected for discussion was precisely the fact that it could be shown to capture the basic generalizations in simple cases because of the α-interpretive mechanism it employs. These generalizations would be lost by any interpretive theory which assumed totally independent interpretation rules for pronouns and reflexives. We saw that in section 1. Since a theory which assumes underlying coreference marking, like the transformational theory we have used for illustration purposes in this paper, can capture all the relevant generalizations, we have to conclude that coreference must be indicated in underlying structure. It cannot be assigned interpretively without the loss of generalizations.

Although the evidence against the interpretive theory presented in this paper comes mainly from English and Icelandic, I think that similar evidence could be found in other languages too. Observe, for instance, that if a language has an obligatory Reflexivization rule within clauses and in addition has an optional (or obligatory) NCBR, a situation similar to that in Icelandic will probably arise. In fact, if a language has sentences with ambiguous reflexives, these will constitute an argument against the α-interpretive theory, unless Reflexivization is completely optional in these cases and there is, accordingly, no complementary distribution between pronouns and reflexives.

The following has been offered as a basic argument for the interpretive theory of pronouns and reflexives: Transformations should not be allowed to refer to coreference marking. It would grant them power which they do not in general possess. Hence an interpretive marking of coreference is preferable (cf. Jackendoff 1972: 108-109). Note, however, that we are not only concerned with limiting the power of our grammars. We are also trying to construct grammars that are powerful enough to capture the relevant generalizations. Having shown that the interpretive theory of pronouns and reflexives cannot capture the basic generalizations, we are closer to the correct theory of pronouns and reflexives than before, since we know that it cannot be interpretive.[16] That must count as progress.

Notes

1. I will use the term "pronoun" in the sense "regular personal pronoun", and "reflexive" in the sense "non-emphatic reflexive pronoun" unless otherwise specified.
2. For an overview of interpretive, transformational, and "mixed" theories of anaphora see Sag and Hankamer (to appear).
3. He uses this assumption as a basis for the claim that the difference between sentences like (i) and (ii) below is to be accounted for by Equi, which is not a rule deleting a full NP but one which deleted x-self after verbs

like want but not after verbs like believe (Chomsky 1975: 31-32):

(i) John believed $[_S$ himself to be incompetent $]_S$

$$\text{Equi:}\ \Downarrow\ {}^{*}\emptyset$$

(ii) John wanted $[_S$ himself to be a contender $]_S$

$$\text{Equi:}\ \Downarrow\ \emptyset$$

A further discussion of this proposal is clearly outside the scope of this paper. Observe, however, that a structure like (i) implies that a reflexive pronoun can be interpreted as coreferent with an antecedent in a higher clause.

4. By "complementary distribution of pronouns and reflexives" I mean patterns like the following:

(i)a I$_i$ shaved $\begin{Bmatrix} {}^{*}\text{me}_i \\ \text{myself}_i \end{Bmatrix}$

b You$_i$ shaved $\begin{Bmatrix} {}^{*}\text{you}_i \\ \text{yourself}_i \end{Bmatrix}$

c He$_i$ shaved $\begin{Bmatrix} {}^{*}\text{him}_i \\ \text{himself}_i \end{Bmatrix}$

It is crucial to understand that this notion of complementary distribution only refers to pronouns and reflexives with same reference. In other words, the fact that we have both sentences like (ii)a and (ii)b does not constitute a counterexample to this generalization:

(ii)a John$_i$ shaved him$_j$

b John$_i$ shaved himself$_i$

Only a sentence like (iii) would be a counterexample, if it were grammatical:

(iii) John$_i$ shaved him$_i$

The fact that there are no sentences corresponding to (ii)a involving 1st and 2nd person pronouns has lead some linguists to make different statements about the distributional relations between 1st and 2nd person personal pronouns and reflexives than about the distributional relations between 3rd person personal pronouns and reflexives (see, for instance, Lees and Klima (1964: 152n), and Stockwell et al. (1973: 207). Such an approach ignores the fact that 1st and 2nd person pronouns are inherently not capable of multiple reference for a fixed occurrence. Hence, by taking coreference into account, as in (i) above, we can say not only that 1st and 2nd person pronouns and reflexives are in complementary distribution within clauses, but we can include 3rd person personal pronouns and reflexives in our generalization too.

5. The fact that there are peculiar exceptions to this in English, such as

   (i) The men$_i$ found a smokescreen around them$_i$

   vs.

   (ii) The men$_i$ threw a smokescreen around themselves$_i$

   need not concern us here. These are exceptions to the general rule which will have to be dealt with by any theory, and I will not have anything new to say about them. Hence they will be ignored in the following discussion. For some discussion see Lees and Klima (1964), Chomsky (1965:146-147), and Lakoff (1968).

6. What it means to say that Reflexivization "cannot apply" in these cases depends on the theory we adopt. This point will become clearer below. For the moment we can use this somewhat vague expression.

7. For a similar formulation see, for instance, Harada and Saito (1971:555).

8. Picture-noun (and backwards) Reflexivization is not discussed in this paper. I do not think that it has been conclusively shown to be the same rule as "normal" Reflexivization. It seems to have quite different properties in Icelandic, for instance, crucially involving the emphatic sjálfur ('self') in sentences like

   (i) Myndin af honum sjálfum sem Jón sá á pósthúsinu
   The picture of him 'self' that John saw in the P.O.

   var ljót
   was ugly

   At any rate, it will not affect the fact that coreferent NPs meeting the clause mate condition undergo Reflexivization.

9. How to represent coreference in deep structure is actually a more complex question than it might seem at first. Indices (first suggested by Chomsky (1965:145), apparently) may not be the best device to do so, but they will nevertheless be used here for expositional purposes. For interesting discussions of these problems see, for instance, Bach (1968: 110 ff.), Postal (1971: 8n), and Stockwell et al. (1973: 177 ff.).

10. See, for instance, Ross (1969) for a similar formulation.

11. See, for example, the interesting theory of anaphora proposed by Sag and Hankamer (to appear).

12. The fact that semantic factors may dissolve the ambiguity of sentences like (27) in certain cases, or make one reading primary and the other secondary, does not affect this argument. For some discussion see Kuno and Kaburaki (1975).

13. Asterisks in translations of this type are used to indicate the ungrammaticality of the Icelandic sentence and not the translation.

14. I do not know of any speakers of Icelandic for whom Reflexivization into the infinitival clause in raised structures is not obligatory. There may, however, be dialectal (or idiolectal) variation with respect to infinitival clauses of other types, where the infinitival clause is introduced by the infinitivel marker að ('to') - e.g. in Equi structures. That is the reason why I am only discussing the raised type here. For those speakers who have an optional Reflexivization into infinitival clauses with the að-marker, the situation is of the (19)3. type instead of (19)1. Hence their dialect will also offer an argument against the α-interpretive theory.

15. We will see below that Reflexivization into that-clauses is optional. This seems to indicate that the S-boundary is weakened by Raising - or perhaps the S is even pruned - so that the obligatory CBR can apply. This is a question that deserves further investigation.

16. For a similar argument see Harada and Saito (1971). See also Sag and Hankamer (to appear).

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The Discovery of Another Island

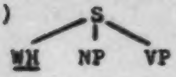
Annie Zaenen
Jessie Pinkham

Harvard University

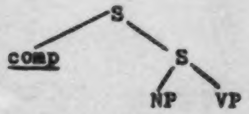
Introduction

0.0.1. In a squib to be published in Linguistic Inquiry, A. Grosu (1976) argues that contrary to one accepted view (that of Bresnan, 1972) two different phrase structure configurations must be recognised for complementizers in English. The two structures are sketched in (a) and (b):

(a)



(b)



According to Grosu, (a) is the structure exhibited by WH-complementisers, e.g. *who* and *what* and in his conception, relative *that*. (1), for example, has the structure shown in(a).

(1) I can't think of anyone $\left\{\begin{matrix}\text{who}\\\text{that}\end{matrix}\right\}$ Bill's resignation would surprise.

All other complementizers, (non-relative) *that*, *as*, etc. are argued to have the structure shown in (b). Therefore sentences like (2) have the (b) structure on Grosu's account.

(2) I am sure that John's promotion will infuriate everybody.

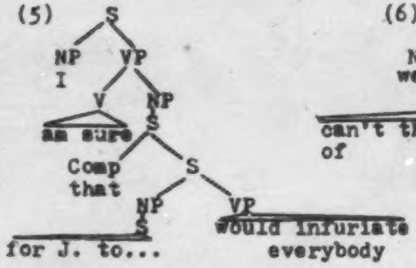
0.1.2. Grosu's main argument is based on contrasts like the following:

(3) I am sure that for John to be promoted to full professor would infuriate everybody.

(4) *We can't think of anyone who for Bill to tender his resignation would surprise in any way.

Briefly his argument is as follows[1]: (4), which has the structure in (6), is ruled out by Kuno's (1973) formulation of Ross's (1967) Internal NP-over-S Constraint (henceforth INPOSC). Since the *who* is a sister of *for Bill to tender his resignation*, the sentence is ruled out at the surface by the INPOSC. (3) on the other hand, is not subject to the constraint because the *that* is in a higher S and *for John to be promoted to full professor* is not "internal", as shown in (5). We will return to the matter of the INPOSC in section 1.

(5)


S
NP
I
VP
V
am sure
NP
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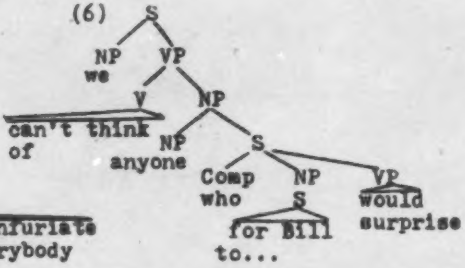
Comp
that
S
NP
S
for J. to...
VP
would infuriate
everybody

(6)


S
NP
we
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can't think
of
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NP
anyone
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who
NP
S
for Bill
to...
VP
would
surprise

0.2 A theoretical drawback : on theoretical grounds Grosu's proposal is rather unattractive; note that it introduces two different COMP-nodes. One of the reasons that Bresnan (1972) proposed considering WH-words as complementizers forming one class with *that*. *for-to*, *as and than*, was that all these words are in complementary distribution . This complementarity follows from Bresnan's one-COMP-node hypothesis. If we introduce two or more CCMP-nodes we have to complicate the theory (at the very least) with a statement that prohibits two different COMP-nodes from showing up in the same clause together.

0.3. In this paper we will show that the facts which Grosu adduces as evidence for his proposal are accounted for by an independently necessary constraint which has nothing to do with the position of complementizers. Consequently we will argue that the facts do not constitute support for his claim.

The structure of the argument is as follows:

0.3.1. Grosu's analysis fails to account for a number of facts in English and Dutch that are clearly related to the ones he takes as support for his analysis;

0.3.2 All the relevant facts can be acconted for by an extraction constraint that as far as we know, has not been noticed before.

We then investigate the properties of this extraction constraint, and show that it is quite general, and similar in nature to the Island Constraints proposed by Ross (1967).

Grosu's proposal

1. Let us return to Grosu's proposal, which presumes to account for contrasts like (7) and (8) as well as for (3) and (4):

(3) I am sure that for John to be promoted to full professor would infuriate everybody.

(4) *We can't think of anyone who for Bill to tender his resignation would surprise in any way.

(7) You certainly shouldn't worry about John, as for him to commit suicide is quite unlikely at the moment.

(8) *We can't think of anyone who that two and two is four is unknown to.

Grosu argues that these contrasts are all to be explained by the INPOSC. INPOSC rules out all sentences that contain an internal NP-clause where "an NP-clause is internal if it is neither the leftmost nor the rightmost constituent of its immediate parent node"(Kuno, 1973). The standard cases ruled out by this constraint are cases like (9):

(9) *Did that John showed up please you ?

(5)

Under Grosu's proposal, as the tree structures in section 0.1.2. show, (4) and (6) also violate the constraint whereas (3) and (5) do not.[2]

Empirical inadequacies

2.1.0. Our first argument will be based on facts in Dutch. We will show that Dutch doesn't have an INPOSC but that nevertheless, sentences where a WH-word precedes a sentential subject are ungrammatical.

2.1.1. Dutch has no INPOSC: this is clearly shown by the grammaticality of the following sentences:

(10) Werd dat de aarde rond is werkelijk bewezen ?
Is that the earth round is really proven ?

(11) Ik vind dat Jan zelfmoord pleegde stupied.
I find that John killed himself stupid.

(12) Lijkt dat twee en twee vier is u waarschijnlijk ?
Seems that two and two are four you plausible ?
'Does it seem plausible to you that two and two are four ?'

In each case the sentential subject is in a position that according to Kuno's (1973) definition is "internal", but the sentences are completely acceptable.

2.1.2 The sentences parallel to the English ones that according to Grosu are out on account of the INPOSC are equally ungrammatical in Dutch:

(13) *Ik weet wie dat de aarde rond is verwondert.
I know who that the earth is round astonishes.

(14) *Ik vraag me af wie dat twee en twee vier is bedroeft.
I wonder who that 2 and 2 are four saddens.

The ungrammaticality of these sentences remains to be explained. The INPOSC cannot be invoked.

2.1.3. Parallelism between the Dutch and the English facts.

It might be maintained that these Dutch facts have no bearing on the problem under consideration. It is however clear that the Dutch facts are sufficiently parallel to the English ones to warrant a search for a common explanation. We will try to bring out this parallelism by two further observations:

a) As in English the extraposed counterparts of the ungrammatical sentences are grammatical.[3]

(15) I know who it astonishes that the earth is round.

(16) Ik weet wie het verwondert dat de aarde rond is.
I know who it astonishes that the earth is round.

b) Sentences introduced by a *that* complementizer are grammatical. We have here to take into account that Dutch lacks the constraint that rules out a sequence of two *that* complementizers[4] and lacks the equivalent of a *for/to* complementizer.

(17) Ik weet dat dat de aarde rond is Jan verwondert.
I know that that the earth round is John astonishes.
'I know that it astonishes J. that the earth is round!

2.1.4. So we see that on the one hand the facts that Grosu tries to explain are very similar in Dutch and that on the other hand his explanation cannot be used in that language because of the absence of an INPOSC. We will make that on theoretical grounds it would be preferable to find a common explanation for both sets of facts, because ultimately, we want to arrive at the simplest possible account of how all languages function. To look for rules or constraints common to several languages is a reasonable way to achieve this goal.

A counter-proposal

3.1. A first approximation to a counter proposal.

In our search for a common cause for the ungrammaticality of sentences where a WH-complementizer is followed by a sentential subject in Dutch and in English, we cannot fail to notice that in both cases WH-movement has taken place. This immediately suggests an alternative proposal: the ungrammaticality of these sentences is due to WH-movement: It is impossible to move an NP out of a clause with a sentential subject. We shall refer to this hypothesis as the post-sentential subject extraction constraint (henceforth PSSEC). This proposal accounts for the grammaticality and the ungrammaticality of the sentences considered this far.

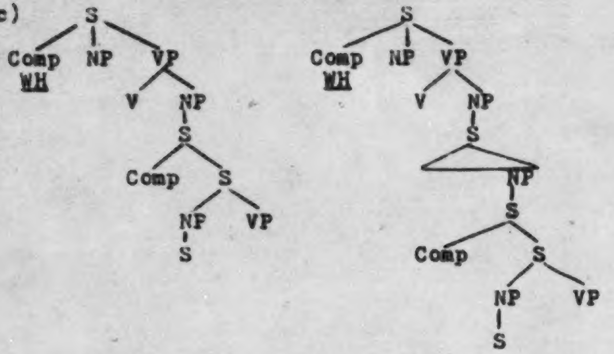
3.2. We now turn to several predictions made by the PSSEC hypothesis that are strikingly different from those made by Grosu's proposal.

3.2.1. A first prediction made by the PSSEC: as WH-movement is known to take place over a variable, the PSSEC predicts that it is not crucial that the WH-complementizer end up immediately in front of the sentential subject.

Grosu's hypothesis, however, refers explicitly to the derived constituent structure, and so can only account for the ungrammaticality of sentences where the WH-word precedes the sentential subject immediately. That is Grosu's proposal predicts grammaticality in cases where the WH-word has moved past the entire clause containing the sentential subject as shown in (c), for in this case the sentential subject is not internal by Kuno's (1973) formulation.

(9)

(c)



What are the facts ? Consider (18) and (19) which are cases exactly like the ones schematized in (c). The WH-word has been moved over the sentential subject into the initial position of a higher clause. The result is decidely ungrammatical.[5]

(18) *Who do you think that for Bill to resign would surprise?

(19) *Who do you suspect that Joe thought that for Bill to kiss the monkey would disgust ?

(20) Who do you think that Bill's resignation would surprise?

(21) Who do you suspect that Joe thought Sue's intention to kiss the gorilla might disgust ?

(20) and (21) on the other hand are sentences where the WH-word has been extracted out of a that-clause that differs only from the on in (18) or (19) in that it doesn't have a fully

sentential subject. (20) and (21) are grammatical. This indicates that it is the presence of a sentential subject that renders (18) and (19) ungrammatical.

Furthermore, the situation in Dutch is analoguous as (22) and (23) show:

(22) *Wie zegt ge dat dat de aarde rond is verwondert?
Who say you that that the earth is round astonishes
'Who do you say that it astonishes that the earth is round?'

(23) Wie zegt ge dat Bill's ontslag verwondert?
Who say you that Bill's resignation astonishes

The PSSEC predicts correctly that (18), (19) and (22) will be ungrammatical because an NP has been moved out of a sentence with a sentential subject. According to Grosu we would expect these sentences to be grammatical.

3.2.2 Our proposal also predicts the ungrammaticality of the following Dutch sentences:

(24) *Wie bedroeft dat Jan niet gekomen is ?
Who saddens that John not come has

(25) *Wie verwondert dat de aarde rond is?
Who astonishes that the earth round is

The English counterparts would be ruled out by the INPOSC, but in Dutch this constraint does not exist, so another explanation must be found. Under our proposal the ungrammaticality of (24) and (25) is again due to the PSSEC.

3.2.3. So we see that not only are sentences that exhibit the sequence WH-word + sentential subject ungrammatical, but indeed all sentences are ungrammatical in which WH-movement has applied to extract out of a sentence with a sentential subject.

Generalization of the PSSEC

4. Wh-movement is known to belong to the class of rules that delete or move NP's over variables and are subject to Island Constraints (Ross,1967). We will now show that what we have said is not only true for WH-movement, but also for the whole class of these rules, here called extraction rules.[6]

It-clefts:

(26) It is John who/that Bill's resignation would surprise most.

(27) *It is John who/that for Bill to resign would surprise most.
It is John who/that it would surprise most for Bill to resign.

Topicalization:

(28) ?John, Bill's resignation wouldn't surprise.

(29) *John, for Bill to resign wouldn't surprise.
??John, it wouldn't surprise for Bill to resign.[8]

Comparative deletion:

(30) Bill's resignation is as certain as John's promotion is.

(31) *That Bill will resign is as certain as that John will be promoted is.[7]
It is as certain that Bill will resign as it is that John will be promoted.

Relative movement:

(32) We can't think of anyone who Bill's resignation would surprise.

(33) *We can't think of anyone who for Bill to resign would surprise.

We can't think of anyone who it would surprise for Bill to resign.

So it seems that the constraint holds for extraction rules. Nothing can be extracted, by movement or deletion, from the remainder of a sentence with a sentential subject. Alternatively: the part of a sentence that follows a sentential subject is an Island.[9]

5.1. It is known that another class of rules that operate over a variable do not obey Island Constraints. This class includes rules such as VP deletion, e.g. (34), and Sluicing, e.g. (35) (Ross, 1967).

(34) John doesn't eat eggplant but I know lots of people who do.

(35) John does eat eggplant and I know several men who have wondered why.

We will now show a few examples that these rules operate freely into the part of a sentence that follows a sentential subject..

(36) That the earth is round doesn't astonish Bill, but that two and two are four does.

(37) He will certainly come with somebody, and that he will be late makes it easy to guess with whom.

So as expected, these rules are not affected by the constraint.

5.2. A less well known class of deletion rules are the downward bounded deletion rules that are studied in Hankamer(1973) and that are subsequently called ellipsis rules (Sag & Hankamer to appear). As these rules do not operate freely over a v variable but can go at most one clause down, our findings up to now don't lead us to expect anything about their behavior, but as these ~~are~~ rules that are in general less well documented than extraction rules and rules like VP deletion and Sluicing, it is of some interest to point out that they seem to be able to operate into our island. The following examples show this for two of them: stripping and comparative ellipsis.. Stripping is a rule that deletes everything in a clause under identity with parts of a preceding clause except for one constituent and, in addition, a negative or an adverb.

After Stripping, (38)a becomes (38)b.

(38)a That the earth is round is obvious to Sue, but that the earth is round is not obvious to Mary.

(38)b That the earth is round is obvious to Sue , but not to Mary.

Comparative Ellipsis operates in comparative clauses and deletes (under ill understood conditions) everything that is structurally identical with corresponding material.in the main clause. This rule can apply in the post sentential part of a sentence.

After Comparative Ellipsis, (39)a becomes (39)b.

(39)a That the earth is round is as certain as that wood can float on water is certain.

(39)b That the earth is round is as certain as that wood can float on water.

A more detailed investigation of ellipsis rules is left for further research, but it seems likely that these rules as a class are not affected by our constraint.

5.3. Therefore, we see that the PSSEC is limited to extraction rules. The same situation seems to prevail in Dutch. Topicalization, an extraction rule[10] obeys the PSSEC:

(40) *Jan verwondert dat de aarde rond is.
John astonishes that the earth round is
'John, it astonishes that the earth is round.'

Stripping, presumably not an extraction rule, is possible:

(41) Dat de aarde rond is is vanzelf sprekend voor Sue
That the earth round is is ovvious to Sue
maar niet voor Marie.
but not to Marie.

6. There is certainly further research to be done in all these areas. However the facts that we have examined in this paper are sufficient to state our conclusions as follows: In a sentence with a sentential subject, the domain to the right of that sentential subject is an island.

Since sentential subjects themselves are islands, as is well known (Ross, 1967), one might suggest the further generalization: all sentences with a sentential subject are islands. This is impossible, however, because it is possible to extract sentential subjects in toto, as the following example (from Higgins, 1973) shows:

(42) That Susan would be late, John didn't think was very likely. "

Summary

7. Grosu claims that a distinction needs to be made between WH-complementizers and other complementizers: WH-complementizers are sister adjoined with the NP and VP nodes under one parent S node, while all other complementizers are Chomsky-adjoined. We have shown that this distinction is quite unnecessary.

The motivation for positing this difference was that it would explain the contrasts in grammaticality between (3) and (4) by the INPOSC.

(3) I am sure that for John to be promoted to full professor would infuriate everybody.

(4) *We can't think of anyone who for Bill to tender his resignation would surprise in any way.

We have first shown that it is unlikely that these facts can be explained by the INPOSC because Dutch, a language that doesn't have an INPOSC, exhibits exactly the same grammaticality contrasts. We have formulated the hypothesis that the ungrammaticality of sentences like (4) is due to an illegitimate application of WH-movement, rather than to to an illegitimate output structure. This proposal predicts that the relevant factor is not whether the WH-word ends up immediately in front of the internal NP-clause, as Grosu's proposal entails. The facts confirm our hypothesis: sentences where the WH-word is moved up further and where a whole clause intervenes between it and the NP-clause are also ungrammatical. In Grosu's proposal these facts come as a total surprise. Under our proposal they follow directly. We have further shown that our constraint is not limited to WH-movement but applies to all extraction rules. Therefore it is clear that the facts cited are only a subset of a larger set of facts that can be explained by the PSSEC. Hence the undesirable consequences of allowing two phrase structure configurations for complementizers in English and Dutch can be avoided.

Of course every explanation leads to a new question: why should the PSSEC exist? We have no answer, we simply add our island to the long list of previously discovered ones, and hope that we will someday know the answer to the more general question of why there are such things as islands at all.

FOOTNOTES

We are greatly indebted to Judith Aissen, Jorge Hankamer, Philip LeSourd, Ivan Sag, and John Whitman, from whom we have received numerous valuable comments.

1- Grosu presents a second argument based on ill understood contraction facts. As his treatment of this matter is sketchy, we will ignore it here.

2- As shown in Kuno(1973) the INPOSC applies fully only to that and for/to clauses. Gerunds and headless relatives can appear more easily in internal position:

(9') Did what John just said surprise you ?

Grosu points out that his proposal predicts rightly the grammaticality of (4'):

(4') We can't think of anyone who what John said would surprise.

And he stresses that the perfect parallelism between the contrast in grammaticality in sentences like (9) and(9') on the one hand, and sentences like (4) and(4') on the other hand is one of the bases of his proposal. The actual situation is more complicated. There seem indeed to be speakers who find (9') and (4') both grammatical; other speakers however find (9') less than perfect and the same class of speakers finds (4') distinctly worse than(9'). We show later that our proposal predicts both correlations.

3- According to the proposal we will make this follows if sententialsubject extraposition precedes WH-movement. If as argued in Jacobson& Neubauer (to appear in LI) and Hankamer (forthcoming), sentential subject extraposition is cyclic and WH-movement is postcyclic, this ordering is automatic.

4- Grosu's proposal doesn't explain the ungrammaticality of double that clauses in English; our proposal will not account for that fact either.

5- It has been pointed out to us that these examples can be improved somewhat by the addition of an adverb or something following the final verb. Thus for some speakers, the following examples are somewhat better than the corresponding ones in the text:

(18') *Who do you think that for Bill to resign would surprise the most ?

(19') *Who do you suspect that Joe thought that for Bill to kiss the monkey would disgust more than Louise ?

However (18') and(19') are not fully grammatical, and the same contrast (with adverb/without) can be observed in sentences where the WH-word is not moved over an intervening clause.

6- The rules under consideration in this and the following section are classified in different ways by various authors. We will follow Hankamer (classnotes) in calling extraction rules the rules that operate over a variable and that obey Ross's Island Constraints.

7- Grosu considers this sentence to be grammatical but the speakers we have consulted all agreed on calling them unacceptable.

8-Under either hypothesis considered here, this sentence should be grammatical. Its ungrammaticality is probably due to an incompability of discourse features between topicalization and sentential subject extraposition.

9-Susumo Kuno has brought to our attention the fact that our constraint no longer holds when the sentential subject appears as the sentential pronoun it,as in a)

a) Sally didn't know that the earth was round, but still, I wonder why it surprised her so much.

This would be a problem for our analysis if it were shown that pronominalization of S was a rule which applied after extraction rules. However,if as argued in Sag & Hankamer (to appear), it is present in deep structure, our constraint is correct in failing to apply.

10-The following facts show that topicalization is an extraction rule in Dutch:

a- the rule can apply over a variable

De fiets zei Jan dat Marc voor z'n zoon gekocht had.
The bicycle, John said that Marc had bought for his son.

b-The rule obeys Island Constraints:

*De fiets herinner ik me wie voor z'n zoon kocht.
The bicycle, I remember who for his son bought.

11-We can now come back to the difference in the behavior between that and for/to clauses on the one hand and the headless relatives and gerunds on the other(see footnote 2). As is shown in Kuno(1973) this difference should not be looked upon as a complete dichotomy. There is,at least for certain speakers, a gradation in grammaticality of embedded NP-clauses: gerunds are good, that clauses are clearly bad, and for/to& HR clauses are somewhere in between; the headless relatives being close to the good end of the scale, and the for/to clauses being close to the bad end. Kuno ascribes this gradation to a"hierarchy of sentence-likeness of NP-clauses". The less an NP-clause is like a sentence, the better it will tolerate the violation of a constraint that refers crucially to its sentencehood. Our constraint together with this principle predicts exactly the degree of grammaticality of sentences like (9') and (4'):

(9') Did what John just said surprise you ?

(4') We can't think of anyone who what John just said would surprise.

In those dialects that consider the INPOSC to be violated in (9'), a second violation has taken place in (4') because another constraint referring to the sentencehood of the sentential subject has taken place. Understandably the sentence with two violations is worse than the one with only one violation. In those dialects where (9') is perfect, (4') will be equally perfect because no violations have taken place in either case.

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